Solicitation No. 00-SP-30-0042
REQUEST FOR PROPOSALS

# UNIT A4 PRESSURE REGULATING VALVE REHABILITATION

## Hoover Dam
## Boulder Canyon Project
## Arizona

Volume 1 - Solicitation & Specifications

Lower Colorado Regional Office
Boulder City, Nevada

2000

United States Department of the Interior
Bureau of Reclamation

WWW.LC.USBR.GOV/~g3100

# UNIT A4 PRESSURE REGULATING VALVE REHABILITATION
# HOOVER POWERPLANT
# LOWER COLORADO DAMS PROJECT, ARIZONA

## FOREWORD

The work to be performed under this solicitation is rehabilitation of the Pressure Regulating Valve (PRV) for Unit A4 at the Hoover Powerplant located near Boulder City, Nevada. The powerplant contains 19 hydroelectric units. The A4 PRV was manufactured by Allis-Chalmers. Replacement bushings, seal rings, gaskets, and packings will be required. The valve will be disassembled by the Contractor and non-embedded parts removed to an off-site facility of the Contractor for rehabilitation. The Contractor shall re-assemble all the parts of PRV after rehabilitating the PRV.

Hoover Dam is located on the Colorado River approximately 8 miles, via U.S. Highway 93, northeast of Boulder City, Nevada, in Clark County, Nevada, and Mojave County, Arizona.

It is strongly recommended that all prospective offerors make a site visit to examine the location of the work.

PROSPECTIVE OFFERORS DESIRING TO VISIT THE SITE OF THE WORK SHOULD COMMUNICATE WITH MR. CHUCK WILEY, LOWER COLORADO DAMS FACILITIES OFFICE, HOOVER DAM, TELEPHONE: (702) 293-8314.

For the date and time of offer submission, see "Solicitation, Offer, and Award," Standard Form 1442, immediately following the "Table of Contents."

This acquisition is being procured under Federal Acquisition Regulations Part 15, Contracting by Negotiation. See the provisions in Section L that include General, Technical, and Pricing Proposal Instructions and in Section M for the Evaluation Factors for Award.

For information regarding Bureau of Reclamation’s publication entitled “Reclamation Safety and Health Standards” (1993 Edition), which is applicable to work under this contract, see the clause entitled “WBR 1452.223-81, Safety and Health.”

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SECTION G - CONTRACT ADMINISTRATION DATA



SECTION H - SPECIAL CONTRACT REQUIREMENTS



Part II - Contract Clauses

SECTION I - CONTRACT CLAUSES

| SOLICITATION, OFFER, AND AWARD (Construction, Alteration, or Repair) | 1. SOLICITATION NO. | 2. TYPE OF SOLICITATION | 3. DATE ISSUED | PAGE | OF | PAGES |
|---|---|---|---|---|---|---|
| | 00-SP-30-0042 | [ ] SEALED BID (IFB) [T] NEGOTIATED (RFP) | JULY 17, 2000 | 1 | | 91 |

**IMPORTANT** - The "offer" section on the reverse must be fully completed by offeror.

| 4. CONTRACT NO. | 5. REQUISITION/PURCHASE REQUEST NO. | 6. PROJECT NO. |
|---|---|---|
| | | |

| 7. ISSUED BY | CODE | 8. IF MAILED BY U.S. POSTAL SERVICE (USPS), ADDRESS OFFER TO |
|---|---|---|
| **Bureau of Reclamation**<br>**Lower Colorado Region**<br>**P.O. Box 61470**<br>**Boulder City NV 89006-1470** | LC-3113 | **Bureau of Reclamation**<br>**Lower Colorado Region**<br>**P.O. Box 61470 (Attn: LC-3113)**<br>**Boulder City NV 89006-1470**<br>IF OFFER MAILED BY OTHER THAN USPS, SEE MAILING INSTRUCTIONS IN ITEM 10. |

| 9. FOR INFORMATION CALL: | A. NAME | B. TELEPHONE NO. (NO COLLECT CALLS) |
|---|---|---|
| < | **Paula Cerda** | **(702) 293-8527** |

**SOLICITATION**

**NOTE**: In sealed bid solicitations "offer" and "offeror" mean "bid" and "bidder".

10. THE GOVERNMENT REQUIRES PERFORMANCE OF THE WORK DESCRIBED IN THESE DOCUMENTS:

## 00-SP-30-0042-Unit A4 Pressure Regulating Valve, Lower Colorado Dams Facilities Office, Boulder Canyon Project, Arizona.

**Offers will be received by the Bureau of Reclamation at the Lower Colorado Regional Office, Annex Building, Room AA-113, Nevada Highway & Park Street, Boulder City, Nevada.**

**Express-mailed offers should be addressed to the Bureau of Reclamation, Lower Colorado Regional Office, Attention: LC-3113, 400 Railroad Avenue, Boulder City, Nevada 89005. Offers mailed via the United States Postal Service should be mailed at least 5 days prior to the date offers are due and addressed as indicated in item 8 above.**

**Hand-carried offers should be delivered to the Bureau of Reclamation, Lower Colorado Regional Office, Nevada Highway and Park Street, Annex Building, Room AA-113, Boulder City, Nevada.**

**Estimated Cost Range of this Project: $250,000 to $500,000.**

11. The Contractor shall begin performance within 15 calendar days and complete it within **See Section F.2 calendar days** after receiving [ ] award, [T] notice to proceed. This performance period is [T] mandatory, [ ] negotiable.

| 12A. THE CONTRACTOR MUST FURNISH ANY REQUIRED PERFORMANCE AND PAYMENT BONDS? *(If "YES," indicate within how many calendar days after award in Item 12B.)* | 12B. CALENDAR DAYS |
|---|---|
| [T] YES [ ] NO | **15** |

13. ADDITIONAL SOLICITATION REQUIREMENTS:

A**. Offers are due at 4:00 on AUGUST 17, 2000. Sealed envelopes containing offers shall be marked to show the offeror's name and address, the solicitation number, and the date and time offers are due.**

B. An offer guarantee [ ] is, [T] is not required.

C. All offers are subject to the (1) work requirements, and (2) other provisions and clauses incorporated in the solicitation in full text or by reference.

D. Offers providing less than 60 calendar days for Government acceptance after the date offers are due will not be considered and will be rejected.

## OFFER *(Must be fully completed by offeror)*

| 14. NAME AND ADDRESS OF OFFEROR *(Include ZIP Code)* | 15. TELEPHONE NO. *(Include area code)* |
|---|---|
| | 16. REMITTANCE ADDRESS *(Include only if different than Item 14)* |
| DUNS No.: | |
| CODE FACILITY CODE | |

17. The offeror agrees to perform the work required at the prices specified below in strict accordance with the terms of this solicitation, if this offer is accepted by the Government in writing within _____ calendar days after the date offers are due. *(Insert any number equal to or greater than the minimum requirement stated in Item 13D. Failure to insert any number means the offeror accepts the minimum in Item 13D.)*

AMOUNTS < **SEE SECTION B, SCHEDULE**

18. The offeror agrees to furnish any required performance and payment bonds.

19. ACKNOWLEDGEMENT OF AMENDMENTS

*(The offeror acknowledges receipt of amendments to the solicitation -- give number and date of each)*

| AMENDMENT NO. | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DATE | | | | | | | | | | | | |

| 20A. NAME AND TITLE OF PERSON AUTHORIZED TO SIGN OFFER *(Type or print)* | 20B. SIGNATURE | 20C. OFFER DATE |
|---|---|---|
| | | |

## AWARD *(To be completed by Government)*

21. ITEMS ACCEPTED:

| 22. AMOUNT | 23. ACCOUNTING AND APPROPRIATION DATA |
|---|---|
| | |

| 24. SUBMIT INVOICES TO ADDRESS SHOWN IN (4 copies unless otherwise specified) | < ITEM para. G.2(a) | 25. OTHER THAN FULL AND OPEN COMPETITION PURSUANT TO ☐ 10 U.S.C. 2304(c)( ) ☐ 41 U.S.C. 253(c)( ) |
|---|---|---|

| 26. ADMINISTERED BY | CODE LC-3130 | 27. PAYMENT WILL BE MADE BY | CODE D-7734 |
|---|---|---|---|
| U.S. Department of the Interior<br>Bureau of Reclamation<br>Lower Colorado Regional Office<br>P.O. Box 61470<br>Boulder City, Nevada 89006-1470 | | U.S. Department of the Interior<br>Bureau of Reclamation<br>Reclamation Service Center<br>P.O. Box 2705<br>Denver CO 80235-0045 | |

### *CONTRACTING OFFICER WILL COMPLETE ITEM 28 OR 29 AS APPLICABLE*

☐ 28. NEGOTIATED AGREEMENT *(Contractor is required to sign this document and return _____ copies to issuing office.)* Contractor agrees to furnish and deliver all items or perform all work requirements identified on this form and any continuation sheets for the consideration stated in this contract. The rights and obligations of the parties to this contract shall be governed by (a) this contract award, (b) the solicitation, and (c) the clauses, representations, certifications, and specifications incorporated by reference in or attached to this contract.

☐ 29. AWARD *(Contractor is not required to sign this document.)* Your offer on this solicitation is hereby accepted as to the items listed. This award consummates the contract, which consists of (a) the Government solicitation and your offer, and (b) this contract award. No further contractual document is necessary.

| 30A. NAME AND TITLE OF CONTRACTOR OR PERSON AUTHORIZED TO SIGN *(Type or print)* | | 31A. NAME OF CONTRACTING OFFICER *(Type or print)* | |
|---|---|---|---|
| 30B. SIGNATURE | 30C. DATE | 31B. UNITED STATES OF AMERICA<br>BY | 31C. AWARD DATE |

**STANDARD FORM 1442 BACK** (REV. 4-85)

# PART I - THE SCHEDULE

# SECTION B - THE SCHEDULE

B.1 WBR 1452.214-908 The Requirements–Bureau of Reclamation–Lower Colorado Region (Nov 1996)

(a) The Contractor shall furnish the items identified in this Section, in accordance with the terms, conditions, and specifications contained in the contract.

(b) Offerors should carefully review the offer submission requirements contained in Section L.

(c) Offers will be considered for award on the Schedules in Paragraph B.2, but no offer will be considered for award for only a part of the Schedules.

(d) Offerors shall complete the offer schedules in Section B and furnish any additional information required in Section B, as applicable.

B.2 Schedules

| Rehabilitate Pressure Regulating Valve (PRV) | | | |
|---|---|---|---|
| ITEM | WORK OR MATERIAL | QUANTITY AND UNIT PRICE | AMOUNT |
| 1 | Mobilization and Preparatory Work | for the lump sum of | $_____ |
| 2 | Pre-Shutdown Activities | for the lump sum of | $_____ |
| 3 | Pre-Shutdown Measurements | for the lump sum of | $_____ |
| 4 | Disassembly of the PRV | for the lump sum of | $_____ |
| 5 | Furnishing Critical Replacement Components | for the lump sum oof | $_____ |
| 6 | Rehabilitation of Control Valve | for the lump sum of | $_____ |
| 7 | Rehabilitation of PRV Operating Linkages | for the lump sum of | $_____ |
| 8 | Rehabilitation of Dashpot | for the lump sum of | $_____ |
| 9 | Rehabilitation of the Main Piston of the PRV | for the lump sum of | $_____ |
| 10 | Rehabilitation of Main Disc. | for the lump sum of | $_____ |

| Rehabilitate Pressure Regulating Valve (PRV) | | | |
|---|---|---|---|
| ITEM | WORK OR MATERIAL | QUANTITY AND UNIT PRICE | AMOUNT |
| 11 | Cavitation Repairs | for the lump sum of | $_____ |
| 12 | Testing A4 PRV Valve | for the lump sum of | $_____ |
| Total for Schedule | | | $_____ |

# SECTION C - STATEMENT OF WORK/SPECIFICATIONS

## SUBSECTION C.1 - GENERAL REQUIREMENTS

### C.1.1 The Requirement

The Contractor shall rehabilitate the Pressure Regulating Valve (PRV) for Unit A4 at the Hoover Powerplant located near Boulder City, Nevada. The powerplant contains 19 hydroelectric units. The A4 PRV was manufactured by Allis-Chalmers. Replacement bushings, seal rings, gaskets, and packings will be required. The valve will be disassembled by the Contractor and non-embedded parts removed to an off-site facility of the Contractor for rehabilitation. The Contractor shall re-assemble all the parts of PRV after rehabilitating the PRV.

The location of the powerplant is as shown on the location map Drawing No. 45-D-16306. All deliveries of furnished materials shall be to the Contractor's facility.

### C.1.2 Description of Work

The Contractor shall rehabilitate the A4 Pressure Regulating Valve (PRV). Sliding and rotating surfaces of PRV components shall be accurately measured and compared to the drawing values, deviations from drawing values will be reviewed by USBR and a disposition issued to the Contractor. Contractor shall furnish specific critical components to be available for replacement. Disassembled components shall be removed from the powerplant to the Contractor's off-site facility for repair and rehabilitation prior to reinstallation into the PRV. Contractor shall replace all wetted fasteners, packings, gaskets and sealing materials. Wetted fasteners includes all threaded bolts and screws up to 2-1/4 inches in diameter that can come into contact with water either through direct immersion or leakage, any non-wetted fasteners showing signs of corrosion shall be replaced. Valve shall be painted, tested and restored to service.

The principal components of the work to be performed under the specifications are as follows:

a. Pre-shutdown measurements
b. Installation of three pressure gauges, one in the control valve supply, one in the main piston drain line and one in the auxiliary space supply line.
c. Pre-teardown measurements including instrumentation and recording devices.
d. Measurements of components during disassembly
e. Examination and report of component condition, corrosion and damage
f. Refurbishment or replacement of critical bushings or sliding surfaces
g. Refurbishment of bushings in linkages
h. Record refurbished dimensions for all refurbished components
i. Refurbishment of seats and sealing surfaces

j. Record dimensions of seats and sealing surfaces
k. Refurbishment of check valves and flow control valves
l. Repair of cavitated surfaces in the energy dissipation chamber
m. Repair of cavitated surfaces in the nozzle (disc and seats)
n. Coating of the energy dissipation chamber
o. Coating of the inner body of the PRV
p. Coating of the exterior surfaces of the PRV
q. Lubrication and refurbishment of all lube fittings, tubing and lubrication channels
r. Refilling dashpot with oil
s. Readjust all linkages to operational positions
t. Test operation of PRV without water after turbine assembly
u. Test operation of PRV with watering up the turbine

C.1.3 Submittal Requirements

a. General - The Contractor shall furnish all materials and perform all work required for furnishing submittals to the Government, in accordance with this paragraph, table C1, and the requirements in the provisions, clauses, and paragraphs of this contract.

The word "submittals" shall be interpreted to include drawings, data, manuals, certifications, test reports, curves, samples, brochures, and other items furnished by the Contractor for approval, informational, or other purposes.

b. List of submittals - Table C1 lists the submittals required by this contract/specifications except those submittals which are required conditionally, required by entities other than the Bureau of Reclamation, or which are periodic in nature. Any submittal required to be submitted by the Contractor, but which is not listed in the table, shall be submitted in accordance with the applicable requirements of this contract. In case of a conflict between the requirements of this paragraph and the requirements included elsewhere in this contract, the requirements elsewhere shall take precedence over the requirements contained in this paragraph.

c. Submittals - Each item in table C1 has been assigned a Required Submittal Number (RSN). The "Submittals required" column of the table specifies the material to be submitted for each RSN. All of the material specified for an RSN will be considered a complete set; and where the material required for an RSN is specified as separate or distinguishable parts, a complete set shall include all parts. Only complete sets shall be submitted.

The number of complete sets to be submitted, and the location to which they are to be sent, shall be in accordance with the "No. of sets to be sent to:" column of the table, except as provided below for sets of original material.

When an RSN involves submittal of original (non-copied) material, all original material, or as much thereof as is necessary to form a complete set, shall be included in just one complete set. This "originals" set shall be sent to the proper address, given in subparagraph e. below, as determined by the "Responsible code" column of the table and the following:

(1) "CO" indicates Contracting Officer.

(2) "RE" indicates Regional Engineer.

(3) "TSC" indicates Technical Service Center.

The "originals" set shall be counted as one of the complete sets required to be submitted under the "No. of sets to be sent to:" column of the table.

For each RSN, the Contractor shall submit complete sets of required submittal material under the cover of a transmittal letter. At the Contractor's option, complete sets for more than one RSN may be submitted under cover of the same transmittal letter, provided they have the same responsible code designation as shown in the table. The Contractor's transmittal letter shall include:

(1) Reference to Bureau of Reclamation contract number and title.

(2) Identification of responsible code as shown in the table.

(3) Complete list of RSN(s) for which material is being submitted.

(4) For each RSN, number of complete sets and list of materials included.

(5) For each RSN, identification of the submittal as an initial submittal or a resubmittal.

Each drawing submitted by the Contractor shall have the Contractor's or supplier's title and drawing number on it. Drawings and data shall be labeled with the Bureau of Reclamation contract number and the bidding schedule item number. All dimensions shall be in feet and inches and all wording, signs, symbols, etc., shall be in English.

Manufacturer's data for commercial products or equipment, such as catalog cut sheets, shall be clearly marked to indicate the item(s) to be furnished. The data shall be sufficiently comprehensive to identify the manufacturer's name, type, model, size, and characteristics of the product or equipment, as well as to fully demonstrate that the product or equipment meets the requirements of these specifications. The Contracting Officer, at the Contracting Officer's option,

may request sufficient additional drawings to demonstrate fully that the equipment to be furnished will conform to the requirements of these specifications.

d. Review of submittals furnished for approval - The time required for review of each submittal or resubmittal furnished under an RSN for approval will not begin until the Government receives complete sets of all the submittal materials required for that particular RSN. The number of calendar days required for review of drawings or data submitted or resubmitted for approval will include the date the drawings or data are received by the Government, and will extend through the date of return mailing to the Contractor.

Except as otherwise provided in these specifications for specific submittals, the Government will require 40 calendar days for review of each submittal or resubmittal furnished by the Contractor for approval, and this review time will apply to each separate submittal or resubmittal whether the submittals are approved, not approved, or returned for revision.

If the Government uses time in excess of the specified number of calendar days for review of any submittal or resubmittal, additional time, not to exceed the excess time, will be added to the time allowed the Contractor for delivery of the materials or equipment affected by such excess time, to the extent it is demonstrated that the excess time caused delay. If the Government's review of two or more separate submittals or resubmittals is late and results in concurrent days of excess time, such days will be counted only once in computing an extension of the delivery date. Further, if the Contractor fails to make complete approval submittals in the sequence and within the time periods specified in this contract, and thus precludes the Government from approving or considering for approval such submittals within the specified calendar day period, then the Contractor shall not be entitled to an extension of time allowed for delivery of the materials or equipment.

Unless otherwise specified, one set of the submittals required for approval will be returned to the Contractor either approved, not approved, or conditionally approved, and will be marked to indicate changes, if required. Submittals that are not approved or that require changes or revisions shall be revised and resubmitted for approval, and shall show changes and revisions with revision date. All requirements specified for the initial submittal shall apply to any resubmittals required. Unless otherwise specified, all submittals which are to be resubmitted shall be resubmitted by the Contractor within 40 calendar days after the Contractor has received the Government's comments.

Any manufacturing done or shipment made before approval of the drawings and data shall be at the Contractor's risk.

Approval by the Contracting Officer of the Contractor's drawings or data shall not be held to relieve the Contractor of any part of the Contractor's responsibility to meet all of the

requirements of these specifications or of the responsibility for the correctness of the Contractor's drawings.

e. Addresses - The Contractor shall send the submittals to the applicable addresses listed below as required by table C1.

The Contractor shall also send a copy of the transmittal letter to each of the addresses listed below that are not sent the submittal.

Submittals shall be sent as required by table C1 to:

(1) Contracting Officer, USBR-Lower Colorado Region
Attention: LC-3130
P.O. Box 61470
Boulder City, NV 89006-1470

(2) Regional Engineer, USBR-Lower Colorado Region
Attention: LC-6000
P.O. Box 61470
Boulder City, NV 89006-1470

(3) TSC, mail to:
Bureau of Reclamation
Attn D-8160 Engineering Services
P.O. Box 25007
Denver CO 80225

f. Cost - Unless otherwise specified, no separate payment will be made for preparing and furnishing submittals to the Government, and the cost thereof shall be included in the prices bid in the schedule for the applicable items of work requiring the submittals or other items of work.

Table C1 - List of submittals

| RSN | Item | Reference provision, clause, or paragraph | Respon-sible code | Submittals required | No. of sets to be sent to:* | | | Due date or delivery time |
|---|---|---|---|---|---|---|---|---|
| | | | | | RE | CO | TSC | |
| 001 | Bonds | 52.228-15 | CO | Performance and Payment Bonds | 0 | 1 | 0 | Within 15 calendar days of contract award. |
| 002 | Safety Data | WBR 1452..223-81 | CO | Experience Modification Rate for Worker's Compensation Insurance; Log and Summary of Occupational Injuries and Illnesses; death and lost workday severity incidence rate | 0 | 1 | 0 | Within 20 calendar days of contract award. |
| 003 | Safety and Health | WBR 1452.223-81 | RE | Safety program | 1 | 0 | 0 | Submitted and accepted before commencing onsite work. |
| 004 | Insurance - work on a Government Installation. | 52.2285 | CO | (1) Written certification that the required insurance has been obtained.<br><br>(2) Current certification of insurance for each subcontractor. | 0 | 1 | 0 | Before commencing onsite work under the contract<br><br>At least 5 days before enty of subcontractor's personnel on the Government Installation. |
| 005 | Liability Insurance | DOI 1452.228-70 | CO | Acceptable evidence showing that insurance has been obtained. | 0 | 1 | 0 | Prior to commencement of work under this contract. |
| 006 | Accident prevention | 52.236-13 | CO | Accident exposure data. | 0 | 1 | 0 | Prior to commencement of onsite work under this contract. |
| 007 | Payment (electronic funds transfer) | 52.232-34 | CO | Payment Information | 0 | 1 | 0 | After award, but no later than 14 days before an invoice or contract financing request is submitted. |
| 008 | Release of Claims. | DOI 1452.204-70 | CO | Release of claims (DI-137) against the United States. | 1 | 1 | 0 | After completion of the work and prior to final payment. |
| 009 | Subcontracts | 52.222-11 | CO | (1) List of subcontract.<br><br>(2) Statement and Acknowledgment Form (SF 1413) for each subcontract. | 1 | 1 | 0 | Within 14 days after award of contract and within 14 days after award of an subcontracts. |

| RSN | Item | Reference provision, clause, or paragraph | Respon-sible code | Submittals required | No. of sets to be sent to:* | | | Due date or delivery time |
|---|---|---|---|---|---|---|---|---|
| | | | | | RE | CO | TSC | |
| M1 | Pressure gages | C.6.3.e.(1) | RE | catalog sheet | 1 | 0 | 1 | Within 90 calendar days after receipt of Notice of Award |
| M2 | Pre-shutdown test procedure and equipment list | C.6.4.e.(1) | RE | procedure | 1 | 0 | 1 | 10 calendar days prior to testing |
| M3 | Disassembly and rehabilitation | C.6.5.e.(1) & (2) | RE | a) schedule<br>b) procedures | 1 | 0 | 1 | Within 90 calendar days after receipt of Notice of Award |
| M4 | Report of pre-shutdown testing, dimensions and conditions | C.6.3.e.(2)<br>C.6.4.e. (2), (3) & (4)<br>C.6.5.e.(3) | RE | Data sheets, strip charts test assessment | 1 | 0 | 1 | Within 5 calendar days after testing |
| M5 | All critical components | C.6.6.b. & c. | RE | Purchase orders | 1 | 0 | 1 | When issued |
| M6 | All critical components | C.6.6.b. & c. | RE | NDE reports | 1 | 0 | 1 | Prior to shipment |
| M7 | All critical components | C.6.6.b. & c. | RE | As-shipped dimensions | 1 | 0 | 1 | 15 days after shipment |
| M8 | Control Valve; Operating Linkage; Dashpot and Cover; Main Piston; Main Disc, seats | C.6.7.c.(1)<br>C.6.8.d.(1)<br>C.6.9.d.(1)<br>C.6.10.e.(1)<br>C.6.11.d.(1) | RE | Examination reports and requests for disposition | 1 | 0 | 1 | Within 5 calendar days after disassembly |
| M9 | Control Valve; Operating Linkage; Dashpot and Cover; Main Piston; Main Disc, seats | C.6.7.c.(2)<br>C.6.8.d.(2)<br>C.6.9.d.(2)<br>C.6.10.e.(2)<br>C.6.11.d.(2) | RE | Deviation reports and repair procedures | 1 | 0 | 1 | Within 20 calendar days after disassembly |
| M10 | Control Valve; Operating Linkage; Dashpot and Cover; Main Piston; Main Disc, seats | C.6.7.c.(3)<br>C.6.8.d.(3)<br>C.6.9.d.(3)<br>C.6.10.e.(3)<br>C.6.11.d.(3) | RE | Clearances of rehabbed components | 1 | 0 | 1 | Before dry run testing |
| M11 | PRV Body, Control Valve and Energy dissipaters | C.6.12.d.(1) | RE | Examination Report and Cavitation Mapping | 1 | 0 | 1 | Within 5 days of mapping |
| M12 | PRV Body, Control Valve and Energy dissipaters | C.6.12.d.(2) | RE | Repair plan and weld repair procedures | 1 | 0 | 1 | 20 days prior to starting weld repair operations |
| M13 | Operational Testing of PRV | C.6.13.c.(1) | RE | Procedures | 1 | 0 | 1 | 30 calendar days prior to start of Phase 1 testing |
| M14 | Phase 1 PRV testing, Dimensions | C.6.13.c.(2) | RE | Reports | 1 | 0 | 1 | Before Phase 2 testing |
| M15 | Phase 2 PRV testing, Dry-run testing of PRV | C.6.13.c.(3) | RE | Reports | 1 | 0 | 1 | Before Phase 3 testing |
| M16 | Phase 3 PRV testing, Manual operation testing of PRV | C.6.13.c.(4), (5) and (6) | RE | Reports | 1 | 0 | 1 | Before Phase 4 testing |

| RSN | Item | Reference provision, clause, or paragraph | Respon-sible code | Submittals required | No. of sets to be sent to:* | | | Due date or delivery time |
|---|---|---|---|---|---|---|---|---|
| | | | | | RE | CO | TSC | |
| M17 | Phase 4 PRV testing, Load rejection operational testing of PRV | C.6.13.c.(7) | RE | Reports | 1 | 0 | 1 | 10 calendar days after completion of Phase 4 testing. |

* CO indicates Contracting Officer, RE indicates Regional Engineer, and DO indicates Denver Office. For mailing addresses, see subparagraph e., "Addresses", of paragraph C.1.3., "SUBMITTAL REQUIREMENTS."

## C.1.4 Handling and Disposal of Lead Contaminated Materials

a. General - The pressure regulating valve to be disassembled and refurbished has been painted with lead-based paints and primers. The interior water passages and exterior surfaces of the valve require coating removal and re-coating. The required environmental precautions shall be exercised prior to working on these items.

b. Disturbing of paint - The collection and containment of the lead-based paint separated from the equipment, or any paint stripping materials, shall be in accordance with the requirements noted below. Under no circumstances will burning of the painted surfaces be allowed.

c. Lead Abatement Program - The Contractor's work shall conform to the OSHA general industry lead standard, 29 CFR 1926.62. The Contractor shall develop and implement a Lead Abatement Program (LAP). As required by paragraph C.1.3., Submittal Requirements, the Contractor shall submit the LAP for approval by the Regional Engineer 60 days prior to start of work at site. The LAP shall have at least the following elements:

(1) Worker Safety and Protection Program - the Contractor shall submit and implement a plan for a site-specific worker safety and protection program to minimize lead exposure. All on-site workers shall be familiar with the safety program and shall be given training on its contents. The plan shall be available on the site for inspection by employees and regulatory personnel. As a minimum, this plan shall include the following:

(a) Engineering controls and good worker practice.
(b) Medical surveillance.
(d) Protective clothing and equipment to be utilized.
(e) Respiratory protection program.
(f) Exposure monitoring and sampling.
(g) Record keeping.
(h) Hygiene facilities and practices.
(i) Employee training and certifications.

(2) Lead Handling Program - Since all of the metal components of the turbine and generator equipment are assumed to have been painted, the LAP shall contain a program to safely handle these components.

(3) Removal and Disposal Program - Where the work will require disturbing the paint system, the LAP shall contain a program to remove and properly dispose of the lead-based paint and any removal media contaminated by lead. The removal and disposal process shall comply with all applicable State, Federal, and local regulations pertaining to lead or lead contaminated products, and with applicable requirements of the Reclamation Safety and Health Standards. Should a conflict exist in the requirements for cleanup and disposal of these materials, the most stringent requirement shall apply.

(4) Other LAP elements - In addition to the above-noted elements, the LAP shall also contain the following items:

(a) Plans to capture and contain lead-based paint, and for working with equipment where the paint is intended to remain undisturbed.

(b) Name of licensed hazardous waste transporter to be used, and EPA transporter number.

(c) Name and location of class 1 disposal site, and EPA facility number.

(d) Hazardous waste manifest.

(e) Certification of legal disposal and/or destruction of lead-based paint and lead contaminated materials.

d. Containment and Disposal of lead contaminated materials -

(1) General - Lead contaminated materials or wastes, that are defined as hazardous (by 40 CFR 261.3; Federal Standard 313, as amended; or by other Federal, State, or local laws or regulations) shall be disposed of in accordance with the contract and applicable Federal, State, and local laws and regulations. The Contractor shall be responsible for testing undisturbed materials that may be hazardous and the test results shall be submitted to the Contracting Officer for review.

(2) Containment - All lead-based paint chips and lead contaminated material which has separated from the equipment shall be contained and collected in U.S. Department of Transportation-approved containers. Containers shall be labeled in accordance with all EPA regulations for hazardous waste materials.

Included on the label shall be the EPA generator number for the work to be accomplished at the Hoover Powerplant.

(a) Filling Containers - All containers shall be a minimum of 90% full. Respirator cartridges, worker clothing, and other worker protection equipment shall also be placed in containers for disposal. If there is not enough waste to bring a container to the 90% full limit, the Contractor shall place clean, nonreactive sand in the containers to meet the minimum requirements.

(b) Government verification - After sealing drums and prior to loading of containers for transportation, the Contractor shall notify the Contracting Officer. Containers will be inspected to verify they meet all disposal requirements prior to loading and transportation.

(3) Disposal - Prior to disposal in a hazardous waste facility, the Contractor shall conduct a toxic characteristic leaching potential test (TCLP) on the lead-based paint in accordance with Appendix II of 40 CFR 261, "Identification and Listing of Hazardous Waste". Disposal of paint chips and associated material shall be at a permitted hazardous waste facility. The hauler of the materials shall be a licensed hazardous waste hauler. All fees, permits and all other requirements for disposal of the material shall be the responsibility of the Contractor.

e. Records - The Contractor shall keep records of the types and amounts of lead contaminated materials produced, and of the disposal of all such materials.

f. Costs - The cost for testing, providing analytical reports, removing and disposing of lead-based paint material shall be included in the contract price for disassembling, refurbishing, assembling, and testing the A4 Pressure Regulating Valve. This cost shall include the cost of the employee lead safety program, removal of the paint material from the powerplant, placing separated paint material in DOT-approved containers, performance of TCLP test, transportation of containers to an approved disposal facility, and disposal of material at the facility.

SUBSECTION C.2 - MATERIALS AND WORKMANSHIP

C.2.1 Materials

a. General - The words "materials" and "material" as used in the contract to denote items required to be furnished by the Contractor shall be construed to mean equipment, machinery, product, component, or any other item procured under the contract. Unless otherwise stated in the contract, materials used in the manufacture of the equipment shall be new and of the highest standard commercial quality as normally used for this type of equipment, considering strength, ductility, durability, best engineering practice, and the purpose for which the equipment is to be used.

Unless otherwise specified, materials used in the manufacture of the equipment shall conform to the applicable specifications of ASTM, ANSI or SAE. If the Contractor for justifiable cause proposes to deviate from — or to use materials not covered by ASTM, ANSI or SAE shall state the reasons for — and the exact nature of — the deviation, and shall submit for the approval of the Contracting Officer complete specifications for the materials that the Contractor proposes to use.

Parts shall be made accurately to standard gauge where possible so as to facilitate replacement and repair. Bolts, nuts, screws, taps, pipes, and pipe fittings shall have unified screw threads conforming to ANSI B1.1 and B2.1. For internal connections of individual items of equipment only, the Contractor will be permitted to deviate from ANSI, provided that the Contractor furnishes a complete set of all such necessary taps and dies which might be required by the Government to facilitate repair or replacement.

Contractor shall clean-up and re-use all serviceable, non-wet environment fasteners. Fasteners that are subject to water exposure either continuously or infrequently shall be replaced. All new fasteners shall be permanently marked with a symbol identifying the manufacturer and with symbol(s) indicating grade, class, type, and other identifying marks in accordance with referenced or applicable standards.

The word "Code" as used in this paragraph, refers to Section VIII of the ASME Boiler and Pressure Vessel Code, including modifications made by addenda and by approved code cases.

Electrical materials and equipment shall conform to the requirements of the applicable standards of the American National Standards Institute, Institute of Electrical and Electronics Engineers, Inc., and/or National Electrical Manufacturers Association.

b. Unit Stresses - Liberal factors of safety and adequate shock-absorbing features shall be used throughout the designs and especially in the design of all parts subject to stresses or shock,

including alternating- and vibrating-type stresses and shock. Shock-absorbing features shall include provisions which prevent components from loosening.

Materials for parts subject to stress due to hydraulic pressure, and materials for other principal stress-carrying parts shall conform to specifications permitted by the Code or to specifications of the American Society for Testing and Materials, provided that if materials conforming to ASTM specifications are used, the materials shall be suitable for the intended use and equal to corresponding Code materials as determined by the Contracting Officer. Upon request from the Contracting Officer, the Contractor shall furnish design calculations and complete information as to the maximum unit stresses used in the design.

The following design conditions shall be met:

(1) Allowable unit stresses under normal operating conditions - Parts subject to the water pressure resulting from the maximum head plus the design value for water hammer shall be designed for a hydrostatic pressure of 280 pounds per square inch. Other parts shall be designed for the most severe normal operating conditions, including load rejection or short circuit at machine terminals. Under the conditions specified above, the unit stress shall conform to the following requirements.

(a) For materials permitted by the Code, or for materials conforming to specifications of the American Society of Testing and Materials corresponding to the Code Specifications, when approved, the unit stresses shall not exceed those allowed by the Code.

(b) For materials conforming to other specifications, the maximum allowable unit stress shall be determined on the same basis as was used in establishing the maximum allowable unit stress values specified in the Code, which basis is described therein.

(c) For other materials, the unit stresses shall not exceed one-third of the yield point nor one-fifth of tensile strength of the material.

(2) Allowable unit stresses under abnormal conditions - Unit stresses higher than those permitted by subparagraph (c) above, but not to exceed the two-thirds of the yield point, will be permitted for the initial pre-stress of bolts.

c. Specific materials shall be as specified in the technical paragraphs.

The Contractor shall send the Contracting Officer, upon his request, a copy of each mill or shop order for material purchased by the Contractor for use in the fabrication of PRV components. The copies of the orders shall state the place at which the material is to be manufactured. All

such mill or shop orders shall quote the requirements of the special conditions and drawings for articles, materials, and supplies to be furnished.

d. Centrifugal Castings.--

(1) Certificates showing the results of the ladle analysis shall be furnished to the Contracting Officer. The casting shall be heat treated.

(2) Repairs shall not be made to castings without the approval of the Contracting Officer. Repairs shall not be made to castings when the defect, properly prepared for welding, exceeds 15 percent of the wall thickness of the final part or one inch, whichever is smaller. Welds shall be stress relieved in accordance with the material ASTM specification. When the Contracting Officer consents to the repair of castings by welding, the Contracting Officer may require radiographic, dye penetrant, or other nondestructive inspection to determine the adequacy of the repairs.

C.2.2 Workmanship

All work shall be performed and completed in a thorough, workmanlike manner and shall follow the best modern practice in the manufacture of high-grade machinery, notwithstanding any omissions from the contract. All work shall be performed by craftsmen skilled in their various trades. All parts shall be made accurately to standard gauge so as to facilitate replacement and repairs.

C.2.3 Welding

a. General - Welding shall be performed by the electric-arc method by a process that excludes the atmosphere from the molten metal, and where practicable, by automatic machines. Machined surfaces of parts affected by welding shall be machined to final dimensions after welding. Machined surfaces of parts requiring stress-relief shall be machined to final dimensions after the parts have been stress-relieved.

b. Design and fabrication - Unless otherwise provided, the design and fabrication of all welded parts shall conform to the following requirements:

(1) Principal stress-carrying parts - The design and fabrication of welded parts subject to stress due to hydraulic pressure and of other principal stress-carrying parts shall be in accordance with Part UW of Section VIII of ASME Boiler and Pressure Vessel Code, with the following exceptions:

(a) Localized stress-relieving will not be permitted for shop-welded parts.

(b) Stress-relieving of field-welded joints will not be required.

(c) Where required under the Code or under this solicitation, welded joints shall be inspected by a non-destructive method approved by the Contracting Officer.

(2) Less important parts - The fabrication of less important parts shall be in accordance with the Standard Code for Arc and Gas Welding in Building Construction of AWS D1.1 2000. Stress-relieving of above parts will not be required.

c. Welding qualifications - The qualification of welding procedures, welders, and welding operators shall conform to the requirements of Section IX of ASME Boiler and Pressure Vessel Code.

Non-destructive examination personnel shall be qualified in accordance with the applicable method of the American Society for Nondestructive Testing Recommended Practice No. SNT-TC-1A 1996, or have equivalent qualifications.

C.2.3 Reference Specifications and Standards

Materials, Contractor design, construction work, and other requirements which are specified by reference to Federal Specifications, Federal Standards, or other standard specifications or codes shall comply with the editions or revisions listed. In the event of conflicting requirements between a referenced specification, standard, or code and these specifications, these specifications shall govern.

In the event that materials are not covered by Federal or other specifications, the materials furnished shall be of standard commercial quality.

Copies of Federal Specifications and standards may be obtained from GSA Federal Supply Service Bureau. See the provision at FAR 52.211-1, "Availability of Specifications Listed in the GSA Index of Federal Specifications, Standards and Commercial Item Descriptions, FPMR Part 101-29." Many of the Federal Specifications and Standards may be examined at the Bureau of Reclamation Denver Office Library, building 67, Denver Federal Center, West 6th Avenue and Kipling Street, Denver, Colorado.

Bureau of Reclamation Standard Material Specifications and Methods of Tests (The M-series documents) may be obtained from the Bureau of Reclamation, Attn D-8170, PO Box 25007, Denver CO 80225-0007, telephone (303) 445-3082.

Other Reclamation publications; including manuals and Reclamation's significant scientific, technical, and engineering works; are available from the National Technical Information Service

(NTIS). Information regarding availability and pricing may be obtained by contacting NTIS at the following address:

United States Department of Commerce
National Technical Information Service
5285 Port Royal Road
Springfield VA 22161
Telephone: (703) 487-4650 or 1-800-553-6847

This address may also be used to order the various manuals and standard specifications printed, reprinted, or published while the Bureau of Reclamation was officially named the Water and Power Resources Service. All references to Water and Power Resources Service or any form derivative thereof shall be considered synonymous with the Bureau of Reclamation.

Addresses for obtaining some industrial and governmental (other than Federal and Bureau of Reclamation specifications and standards) specifications, standards, and codes are listed in the provision at FAR 52.211-3 "Availability of Specifications Not Listed in the GSA Index of Federal Specifications, Standards and Commercial Item Descriptions."

The Contractor shall maintain onsite, a copy of referenced specifications and standards related to work proceeding at the jobsite while the work is being performed. These shall be available for use by the Government.

SUBSECTION C.3 - LOCAL CONDITIONS

C.3.1. Access to the Work and Haul Routes

a. General.--The Contractor shall make its own investigation of the condition of available public or private roads and of clearances, restrictions, bridge-load limits, bond requirements, and other limitations that affect or may affect transportation and ingress and egress at the jobsites. Subject to the clause entitled "Default (Fixed-Price Construction)," the unavailability of transportation facilities or limitations thereon shall not become a basis for claims for damages or extension of time for completion of work.

b. Existing roads.--Existing roads are available for the Contractor's use subject to existing restrictions. The Contractor shall meet all conditions properly imposed upon the use of existing roads by those having jurisdiction thereover, including seasonal or other limitations or restrictions.

c. Haul routes.--The hauling of construction materials or waste materials over public highways, roads, or bridges shall be in compliance with the applicable local regulations and shall be such as to minimize interference with or congestion of local traffic.

d. Parking.--Parking is extremely limited in the construction area, and the Contractor may be restricted as to the number and the type of vehicles that may be parked there. The Contractor shall use parking areas adjacent to the construction site as approved by the Contracting Officer, and shall not block traffic with parked vehicles, equipment, and/or materials. Additional area for the Contractor's employee parking will be provided at an area near the Government warehouse on U.S. Highway 93.

The Contractor shall place an identification label, with the Contractor's name, on the windshield of vehicles parked at the construction area. This will not be required if the Contractor's name is prominently displayed at some other location on the vehicle.

e. Cost.--The cost of all work described in this paragraph shall be included in the prices bid in the schedule for other items of work.

C.3.2. Security and Identification of Employees

The operation of Hoover Dam and Powerplant requires continuous and effective security measures. Such security is carried out by a Federal guard system, and the security regulations provide for controlled access to certain restricted areas including switchyards, powerplants, and other critical areas. These restricted areas are designated and may be modified or changed by the Contracting Officer. All necessary security measures required by this contract including

provisions for security police and/or guards shall be subject to the approval by the Contracting Officer. The Contractor shall be responsible for initiating necessary measures to insure that its employees comply with all established security rules and regulations, including but not restricted to the following:

1) Construction work areas.--All areas where work is required under this contract are designated as construction work areas. The Contracting Officer will designate suitable accessways to construction work areas for use of construction personnel. Unless specifically authorized, construction personnel shall be restricted to these areas. It shall be the Contractor's responsibility to insure by appropriate and effective means that its personnel remain in these areas while on the jobsite.

2) Restricted areas.--Construction personnel will not be permitted to enter established or designated restricted areas unless so authorized by the Contracting Officer. Such entry shall be in accordance with and subject to the security regulations established in the area. It shall be the Contractor's responsibility to insure by appropriate and effective means that its personnel shall not enter these areas unless authorized as set forth above.

3) Identification of Contractor employees.--All Contractor personnel who will require access to secured areas of the Hoover Dam facilities shall be issued a numbered identification badge clearly identifying the employee and its employer. Such identification shall be required for all employees on the jobsite and shall be worn at all times. If special badges holding the employee's photograph are required for restricted areas, such badges will be furnished by the Government.

Initial issuance of badges will be made at no cost to the Contractor; however, the cost of replacement badges shall be borne by the Contractor. All badges must be returned to the Contracting Officer upon completion of the work.

The cost of complying with this paragraph shall be included in the prices bid in the schedule for other items of work.

C.3.3. Use of Land for Service Purposes

a. General.--The Contractor will be permitted to use Government land, controlled by the Bureau of Reclamation, for field offices, plants and buildings, storage yards, shops, and other service facilities required for service purposes.

b. Government land.--The Contractor's use of Government land for service purposes shall be subject to SUBSECTION C.5 (ENVIRONMENTAL QUALITY PROTECTION) of these specifications, and to the requirements of this paragraph. Such use shall not interfere with any

part of the work under this contract, nor with the work of other contractors or the Government in the vicinity, nor with reservations made, or as may be made, by the Government for the use of such land.

c. Cost.--No charge will be made to the Contractor for the use of Government land for service purposes.

C.3.4. Protection of Existing Installations

a. General.--In performing work in the existing facility, the Contractor shall take all necessary precautions to safeguard existing installations.

The Contractor shall furnish, install, and maintain adequate protection as needed to safeguard personnel and existing facilities from harm due to its operations. Such protection shall be subject to approval by the Contracting Officer.

All protective installations shall be arranged so as to permit operation of the existing equipment and facilities by the Government while work under these specifications is in progress. The Contractor shall remove all protective installations provided by them after they have served its purpose. The materials furnished by the Contractor to provide protection shall remain the property of the Contractor and, after removal, shall be transported from the worksite.

Drawings included in these specifications show the items of existing materials and equipment but do not purport to show all equipment and materials existing at the worksite.

b. Enclosures.--Enclosures shall be constructed by the Contractor to prevent weld spatter, dust, spalls, chips, grit, and other foreign material from endangering personnel and contaminating or damaging equipment during service operations.

Enclosures shall be subject to approval of the Contracting Officer. Enclosures shall be sufficient to confine the Contractor's operations to the immediate work area, and to prevent contaminating and damaging mechanical and electrical installations.

c. Damages.--The Contractor shall repair, at its expense, any damage to the existing installations due to the Contractor's operation or its failure to provide proper protection; or at the option of the Contracting Officer, any such damage may be repaired by the Government and the Contractor will be backcharged for the cost thereof.

d. Cost.--The cost of protection of existing installations in accordance with this paragraph shall be included in the prices bid in the schedule for other items of work.

C.3.5. Government and Contractor Furnished Facilities

The following Government facilities will be available to the Contractor at no charge for use in the performance of work under these specifications:

a. Water at approximately 80 pounds per square inch pressure.

b. Sanitary facilities.--Existing restrooms will be made available.

c. Electrical power.--Single phase, 60-hertz, alternating current at approximately 120/240 volts

d. Compressed air.--Pressurized air lines at various locations within the penstock tunnel and access adit will be made available to the Contractor upon request.

The location of these facilities will be shown during the prebid site visit or after award of the contract. Facilities are provided on an as-is, where-found basis. The Contractor is responsible for being cognizant of the location of the utilities.

The Contractor shall provide all necessary distribution circuits, transformers, and other electrical equipment required for distributing the power to the place or places of use by the Contractor and shall dismantle and remove from the site of the work all such distribution circuits and equipment at the termination of the contract.

Likewise, the Contractor shall provide all means of conveying water and/or compressed air to points of use and shall remove from the site all Contractor equipment at the termination of the contract.

The cost of providing necessary materials and labor for conveying water and power to points of use shall be included in the prices bid in the schedule for other items of work.

C.3.6 Use of Existing Government Cranes

Government equipment as defined below, that are located at the jobsite, will be operated by Government personnel. The Government will remain responsible for the normal maintenance responsibilities for Government equipment.

The Arizona powerplant, 300-ton crane will be available to the Contractor for use. The operation of the crane will be performed by a Government employee. The cost to the Contractor for use of the crane will be $75 per hour which will include one operator. The Contractor will be responsible for all rigging of the loads. There will be a minimum 2 hours charge for each time the Contractor requests the use of the crane.

Payment to the Government by the Contractor for use of Government equipment shall be made by showing a credit to the Government on each progress payment request of the total payment due the Government for the Contractor's use of the Government equipment during the period for which the progress payment is being requested. The total amount due the Government shall be agreed upon by both parties prior to including the credit on the request for progress payment. A final adjustment to the contract price reflecting the total amount credited to the Government for use of Government equipment will be accomplished by modification to the contract at the completion of the contract performance period.

The request for use of this equipment shall be made to the Regional Engineer in writing at least 48 hours prior to each scheduled time of use. The use of the 300-ton crane are restricted to the hours between 7:00 a.m. to 4:00 p.m. Monday through Thursday excluding Holidays.

The Contractor shall be responsible for providing all materials necessary to safety rig each load for the cranes described above whether the cranes are operated by the Government or Contractor.

SUBSECTION C.4 - SAFETY

C.4.1. Submission of Material Safety Data Sheets for Hazardous Materials

The Contractor shall not require or permit any employee employed in the performance of the contract to engage in work under conditions which are unsanitary, hazardous, or dangerous to the employees health or safety and shall therefore comply with the Reclamation Safety and Health Standards. After award of contract, the Contractor shall submit updated List of Hazardous Materials (LHM) and Material Safety Data Sheets (MSDS) in accordance with the requirements of paragraph (e) of the clause at FAR 52.223-3, "Hazardous Materials Identification and Safety Data."

The Contractor shall submit the updated LHM and completed MSDS and identification and certification for each material to the Bureau of Reclamation, Lower Colorado Dams Facilities Office, Regional Engineer, Attn: LC-6000, P.O. Box 61470, Boulder City NV 89006-1470. Copies of the updated LHM and completed MSDS shall be submitted in accordance with Paragraph C.1.3. (SUBMITTAL REQUIREMENTS). The Contractor shall not deliver any hazardous material to the jobsite which was not included on the original LHM prior to acceptance of the Contractor's MSDS by the Construction Engineer, Boulder City, Nevada.

The cost of complying with this paragraph shall be included in the applicable prices bid in the schedule for the items of work for which the hazardous materials are required.

SUBSECTION C.5 - ENVIRONMENTAL QUALITY PROTECTION

C.5.1. Prevention of Water Pollution

a. General.--The Contractor shall control pollutants by use of wastewater management controls, service site management practices, and other controls, including State and local control requirements.

(1) Service site management.--The Contractor shall perform service activities by methods that will prevent entrance, or accidental spillage, of solid matter, contaminants, debris, or other pollutants or wastes, into streams, flowing or dry watercourses, lakes, wetlands, reservoirs, or underground water sources. Such pollutants and wastes include, but are not restricted to: refuse, garbage, cement, sanitary waste, industrial waste, hazardous materials, radioactive substances, oil and other petroleum products, aggregate processing, tailings, mineral salts, and thermal pollution.

(2) Service safety standards.--The Contractor shall comply with the sanitation and potable water requirements of section 7 of Reclamation's publication "Reclamation Safety and Health Standards."

(3) Laws and regulations.--The Contractor shall perform service operations in such a manner as to comply, and ensure all subcontractors to comply, with all applicable Federal, state, and local laws, orders, regulations, and Water Quality Standards concerning the control and abatement of water pollution. In the event there is a conflict between Federal, state, and local laws, regulations, and requirements, the most stringent shall apply.

b. Cost.--The cost of complying with this paragraph shall be included in the prices bid in the schedule for other items of work.

C.5.2. Abatement of Air Pollution

a. General.--The Contractor shall comply with applicable Federal, state, and local laws and regulations and with the requirements of this paragraph concerning the prevention and control of air pollution. Should a conflict exist in the requirements for abatement of air pollution, the most stringent requirement shall apply. The Contractor shall utilize such methods and devices as are reasonably available to prevent, control, and otherwise minimize atmospheric emissions or discharges of air contaminants.

Burning of combustible service materials and rubbish will not be permitted. In lieu of burning, such combustible materials shall be disposed of in accordance with Paragraph C.5.3. (CLEANUP AND DISPOSAL OF WASTE MATERIALS).

Storage and handling of flammable and combustible materials, provisions for fire prevention, and control of dust resulting from service operations shall be in accordance with the applicable provisions of Reclamation's publication "Reclamation Safety and Health Standards."

b. Submittals.--Submittals shall be in accordance with this paragraph and Paragraph C.1.3. (SUBMITTAL REQUIREMENTS).

Prior to commencing any activity for which an Air Quality Permit is required, the Contractor shall submit, for informational purposes, a copy of the applicable Air Quality Permit. Air Quality Permits are required for certain service-related activities including, but not limited to, earthmoving, sandblasting, aggregate processing, welding, spray-coating operations, or other processes which discharge pollutants into the open air.

Air Quality Permits, and information concerning the requirements, can be obtained from the appropriate state agencies.

c. Cost.--The cost of complying with this paragraph shall be included in the prices bid in the schedule for other items of work.

C.5.3. Cleanup and Disposal of Waste Materials

a. General.--The Contractor shall be responsible for the cleanup and disposal of waste materials and rubbish. Contractor removed piping and appurtenances to be disposed of shall be considered waste material. The disposal of waste materials and rubbish shall be in accordance with applicable Federal, state, and local laws and regulations, with applicable requirements of Reclamation's publication "Reclamation Safety and Health Standards," and with the requirements of this paragraph. Should a conflict exist in the requirements for cleanup and disposal of waste materials, the most stringent requirement shall apply.

The Contractor shall keep records of the types and amounts of waste materials produced, and of the disposal of all waste materials on or off the jobsite.

In the event of the Contractor's failure to perform the work required by this paragraph, the work may be performed by the Government, and the Contractor will be backcharged for the cost of such work. The Contractor's surety or sureties shall be liable for such payment until received by the Government.

b. Cleanup.--The Contractor shall keep work and storage areas free from accumulations of waste materials and rubbish, and before completing the work, shall remove all plant facilities, buildings, enclosures, including concrete footings and slabs, rubbish, unused materials, concrete forms, and other like materials, which are not a part of the permanent work.

In addition, the Contractor will be required to conduct an environmental site assessment at the following Contractor use locations:

(1) All hazardous waste accumulation areas.

(2) All hazardous material storage areas where the aggregate storage of hazardous materials at the site is or has been over 110 gallons.

This site assessment shall be performed by an industrial hygienist, an environmental specialist, or equivalent, and shall document through appropriate analytical sampling that the site is free of the effects of contamination (i.e., contaminant concentrations less than state action cleanup levels).

c. Disposal of hazardous waste and materials.--Materials or wastes, defined as hazardous by 40 CFR 261.3; Federal Standard 313, as amended; or by other Federal, state, or local laws or regulations, used by the Contractor or discovered in work or storage areas, shall be disposed of in accordance with these specifications and applicable Federal, state, and local laws and regulations. Unknown waste materials that may be hazardous shall be tested, and the test results shall be submitted to the Contracting Officer for review.

Waste materials known or found to be hazardous shall be disposed of in approved treatment or disposal facilities. Hazardous wastes shall be recycled whenever possible. A copy of all hazardous waste manifests shall be sent to the Contracting Officer.

Waste materials discovered at the service site shall immediately be reported to the Contracting Officer. If the waste may be hazardous, the Contracting Officer may order delays in the time of performance or changes in the work, or both. If such delays or changes are ordered, an equitable adjustment will be made in the contract in accordance with the applicable clauses of the contract.

d. Disposal of other nonhazardous waste materials.--

(1) General.--Waste materials including, but not restricted to, refuse, garbage, sanitary wastes, industrial wastes, and oil and other petroleum products, shall be disposed of by the Contractor. Disposal of combustible materials shall be by removal from the service area. Disposal of combustible materials by burning will not be permitted.

(2) Disposal by removal.--Waste materials to be disposed of by removal from the service area shall be removed prior to completion of the work under these specifications. All materials removed shall become the property of the Contractor.

Waste material shall be dumped only at an approved sanitary landfill. The Contractor shall make any necessary arrangements with private parties and county officials pertinent to

locations and regulations of such landfills, and shall pay any fees or charges required for such dumping.

e. Cost.--Except as provided above, the cost of cleanup and disposal of waste materials in accordance with this paragraph shall be included in the prices bid in the schedule for other items of work.

SUBSECTION C.6 - REHABILITATION OF PRESSURE REGULATING VALVE

C.6.1 General

The Contractor shall furnish all labor, material, equipment, and support personnel required for the disassembly and assembly of pressure regulator valve Unit A4 as shown on the drawings and in accordance with these specifications.

The Contractor may schedule the existing main 300 ton crane during his construction operations. The Contractor shall give the Bureau 48-hour notice of their crane requirements. The Government reserves the priority use of the cranes. The crane will be operated by the Government, see subsection C.1.4 for using the existing Government crane.

C.6.2 Clearance and Safety Procedure

The contractor shall provide his own padlocks for lockout and clearance of the Unit.

During disassembly and assembly of the PRV, the Contractor's operations shall be such that no oils, grease or other unacceptable materials are released into the river. Oil and grease spills within the powerplant shall be kept to a minimum and immediately cleaned up.

C.6.3 Pre-shutdown Activities

a. General.--Prior to the disassembly of the PRV, the Contractor shall study the drawings and operational description and become familiar with the construction of the Unit. Any special instructions on any of the drawings for disassembly shall be noted. The Contractor-fabricated tools shall become the property of the Government.

b. Pressure Gauges/transducers.- Unit A4 will be temporarily taken out of service and de-watered for installation of gauges/transducers to assist the rehabilitation. Several key pressure devices are necessary to be installed and utilized during the pre-shutdown phase to monitor current conditions. To install these devices the unit will be shut down, butterfly valve closed and the spiral case, turbine and draft tube drained to below the PRV disc.

(1) Control Valve Pressure gauge/transducer.-- Drawing 02 200 873, item 7, is a 2 inch plug in the elbow leading to the control valve. When the unit is dewatered, the plug shall be removed and a 0-500 psi pressure gauge with isolation valve installed, ½ inch NPT.

(2) Auxiliary space pressure gauge/transducer.- A pressure device is required to be installed while the unit is dewatered but prior to complete shutdown. The pressure device will be used to establish the leakage rate through the packings associated with the auxiliary

cylinder. Operations appendix written in 1938 and included in these specifications (Appendix A) indicates a supply valve, a drain valve and a pressure relief valve in the piping to the auxiliary cylinder, below the main 71 inch diameter piston. The 6 inch supply valve and 2 inch relief valve are located near the control valve strainer. Drawing 02 501 028, item 21, shows the location of the drain valve "B" (½ inch extra heavy bronze cock). The 6 inch supply valve which must be closed as its source is upstream of the butterfly valve. On drawing 02 501 028, a ½ inch union is shown (item 18) downstream of the tap into the 6 inch pipe. A tee should be added close to the union. An isolation valve and 0-500 psi pressure gauge shall be installed in the leg of the tee.

(3) Piston cover pressure gage.-- A pressure gage is required to be installed while the unit is dewatered but prior to complete shutdown. The pressure device will be used to establish the leakage rate through the packings associated with the main piston. Drawing 02 816 283 shows the top cover for the PRV. A ½ inch NPT tapped hole shall be provided for 0-5 psi pressure gage with isolation valve installed. A clear plastic 6 foot, 3/4 inch Tygon tube with ½ inch shutoff valve and nipple would also be acceptable to get an indication of the magnitude of the water draining from the top of the piston.

After the pressure devices for the top cover, auxiliary cylinder and for the control valve are installed, the unit shall be rewatered and the final measurements taken on leakage rates of the main valve and the auxiliary cylinder space.

c. Linear displacement transducers.- Linear displacement transducers shall be temporarily installed at four locations:

(1) disc position (column indicator) (19 inch full stroke)
(2) PRV connecting rod at shift ring (16 inch full stroke) or servomotor stroke
(3) PRV yoke ( top of dashpot) (22 inch full stroke)
(4) Stem of control valve, this is not an absolute measurement of control valve position only position of the pilot stem (valve piston will move 5/8 inch but stem rise may be greater)

d. Measurements.- With the turbine gates shut and the unit dewatered the following measurements shall be taken:

| | | |
|---|---|---|
| (1) | Shift ring full stroke 0-100% | (16.16 inch nominal) |
| (2) | Radius of adjustable lever | (27 3/8 inch nominal ) |
| (3) | Dashpot stroke | (19 inch nominal ) |
| (4) | Disc stroke | (17.74 inch nominal) |
| (5) | Length of adjustable connecting rod, center of pivot to center of pivot | (11 foot - 0 inch nominal) |

(6) With turbine gates closed measure angle and position of adjustable lever pivot from vertical (18.5°) 8 13/16 inch nominal
(7) Measure height of plunger valve stem, relative to the reference pin and to the top of the piston
(8) Measure height of plunger valve stem when plunger is fully seated, relative to reference pin (0 inch) and relative to the top of the piston.
(9) Recording of linkage location for the control valve feedback linkage, pivot points and adjustable lever lengths, nominal position when valve closed.

e. Submittals - The Contractor shall submit the following in accordance with this paragraph and paragraph C.1.3 ( Submittal Requirements):

(1) Catalog cut sheets for the pressure gauges and transducers.
(2) Data Sheets with recorded measurements

f. Payment.- Payment for pre-shutdown activities will be included in the lump-sum price bid therefore in the schedule, Item 2, which price shall include all labor, materials, and equipment required for furnishing and installing pressure gauges/transducers, linear displacement transducers and unwatered measurements of the PRV.

C.6.4 Pre-shutdown Measurements, Readings and Operations

a. General.- The Contractor shall develop examination reports and records of present condition and problems of the PRV. This can help identify specific items that need attention during the overhaul of the PRV. Pre-teardown measurements shall be taken of all accessible, adjustable linkages, pivots and valves. The pre-shutdown activities and readings shall include, but not be limited to the following:

(1) Monitor leakage pressures and flows prior to shutdown
(2) Monitor the auxiliary cylinder space below the main valve to assess magnitude of leakage prior to rehabilitation.
(3) Wiring of 4 linear displacement transducers to a data acquisition recording during load rejections and other test operations.

(4) Turbine load rejections to establish PRV timing relative to turbine timing, strip chart recorder data of shift ring, PRV yoke, PRV disc, Control valve stem
(5) Slider block position relative to turbine shift ring
(6) Crank arm angle to vertical when turbine closed and PRV closed
(7) Control valve linkages, lengths
(8) Control valve linkage pivot locations
(9) Dashpot oil level
(10) Reclose valve position relative to top of yoke, ( adjustable valve in dashpot piston)

b. Data Recording.- The four outputs of the linear displacement transducers shall be simultaneously recorded as four channels on a contractor furnished strip chart recorder or an approved digital data recording during the pre-shutdown testing to establish turbine gate timing and disc opening timing, delay prior to disc movement and stroke of the servo and PRV. Data recording shall run at a fast rate for the opening phase of the PRV (1 inch per second). The data recorder shall continue to record while the disc recloses, however the data acquisition speed can be reduced during this phase. Data acquisition speed, calibration and other test conditions including reservoir level and power shall be noted on the output.

Leakage rates will be estimated and recorded by pressure leak down rate of pressure gauges, and observation of drain piping and packing leakage. Contractor shall install a contractor furnished clamp-on flow meter to the 20 inch supply pipe to the control valve. Flow rates shall be recorded during control valve operations. Video or photos should be utilized to document leakage. The flow meter will be utilized during the operational testing after rehabilitation and the flowmeter will remain the contractor's equipment.

c. Test of Re-close .- The disc re-close rate will be tested by manually controlling the disc with the control valve handwheel. Check for a 1-inch gap between the top of the adjusting nut and the bottom of the lower lock ring below the yoke. The dashpot handwheel will not be moved and the adjusting nut shall remain fully extended, only the control valve handwheel will be necessary to operate the PRV.

Strip chart recordings of the linear displacement transducers shall be the primary documentation for the following pre-shutdown operations.

(1) Without changing the existing plunger valve (re-close) setting and with the butterfly valve open, and the turbine shut down, turn the control valve handwheel slowly (20 seconds for 5/8 inch stem rise) to raise the control valve to open the disc (discharge valve) . Expected movement of the control valve stem is 5/8 inch or more and the main valve/disc is 19 inches.

(2) Slowly ( 20 sec) return the handwheel to lower the control valve, note the time it takes to re-close the disc and any observable problems, grinding, stalling, hesitation.

(3) Turn the handwheel slowly to raise the control valve spool, but only enough to open the disc about 5 inches, 25% of its travel. With the re-close plunger valve still unchanged at its existing setting, quickly turn the handwheel to lower the control valve, lowering the control valve will put pressure under the main piston, and re-close the disc at the plunger valve rate, record the time it takes the disc to close.

(4) After measuring the existing height of the plunger valve stem and recording the number of turns to fully seat the plunger, back the plunger off about 1/64 inch from fully seated. Again move the control valve to the 25% disc open position. Once the disc is again 25% open, quickly move the control valve to the re-close position and time the rate of re-close of the disc.

These test times will be compared to the rehabilitated PRV with the same test situations.

During all load rejection or PRV operations, Contractor shall note binding or stalling, and the PRV disc location when binding occurs as well as the turbine shift ring location.

d. Test of the auxiliary space.-- An auxiliary space exists below the main valve of the PRV. With the unit de-watered the disc will fall open by gravity when the water pressure in the piston chamber of the main valve leaks out or is drained. The auxiliary space is fed from a pressure source upstream of the butterfly valve to allow closure of the disc when the unit is de-watered. Prior to disassembly, the disc closing ability of the auxiliary space will be confirmed. It is conceivable that the cylinder packings leak enough to prevent operation, or the piping may have failed. The auxiliary space will be operated and leakage observed to assure proper operation during subsequent disassembly.

With the unit de-watered, open the control valve to the auxiliary chamber. This is a 6 inch wedge valve located near the main penstock butterfly valve , El 640. Drawing No. 02 501 025. The control line reduces to 4 inches (02 501 023, item 11) prior to entering the piston guide 02 500 871. With expected reservoir levels, at least 190 psi should be available at the penstock. The effective piston area is approximately 450 square inches, resulting in a lifting force of 86,000 pounds. The piston/disc/dashpot assembly will weigh approximately 42,000 pounds so there is considerable allowance for bad packing and friction. Observe leakage through the auxiliary space into the main valve body and disc area. If leakage is severe or if the disc is not raised back to its closed position then the crane will be necessary to hold up the Piston Assembly (42,000 pounds) while disassembling the main piston.

e. Submittals - The Contractor shall submit the following in accordance with this paragraph and paragraph C.1.3 ( Submittal Requirements):

(1) Test procedures and equipment list for pre-shutdown and pre-teardown operations and installations
(2) Strip chart of test runs with proper documentation of test conditions
(3) Test results of auxiliary space test
(4) Assessment of leakage rates

f. Payment.- Payment for pre-shutdown measurements will be included in the lump-sum price bid therefore in the schedule, Item 3, which price shall include all labor, materials and equipment necessary for set-up of the strip chart recorder, pressure gauges, linear displacement transducers and measurements of the PRV during load rejections and other watered operations.

C.6.5 PRV DISASSEMBLY

a. General. –The Contractor shall disassemble all structural, mechanical, and electrical Pressure Regulator Valve components as necessary to refurbish and replace the items required by this contract. Machine condition readings shall be taken by the Contractor prior to shutdown and teardown. Procedures for disassembly and reassembly of the PRV shall be submitted to the Contracting Officer for approval. Any components destroyed or damaged in handling or during storage, as determined by the Contracting Officer, shall be replaced or repaired in a manner approved by the Contracting Officer, by and at the expense of the Contractor.
The Contractor shall remove all disassembled components from the Powerplant as space is unavailable for overhaul or storage in the Powerplant.

b. Labeling and Matchmarking - Prior to and during the disassembly of the PRV, all parts shall be labeled and matchmarked using stamping or punch marked method to make sure they are installed in exactly the same position from which they were removed. The Contractor shall furnish all labor, materials, and equipment required for labeling and matchmarking all parts as cited above.

c. Schedule/Procedure –The Contractor shall develop its own time/effort schedule and procedure for disassembly of the PRV. The Government will be disassembling/reassembling the Unit 4 turbine at the same time the Contractor is working on the A4 PRV. The Government will be using the Turbine Gallery crane (60 ton) for this work. The crane rail passes directly over the PRV and limits disassembly access until the turbine is disassembled and the crane rail over the PRV is removed. Once the turbine gallery crane rail is removed, the main 300 ton powerplant crane can be scheduled, see subsection C.1.4 for use of Government crane, and used for disassembly of the PRV. Prior to removal of the turbine gallery crane the Contractor will not have crane access. The Government will disassemble the shift ring to crosshead connecting rod

and the crosshead to PRV connecting rod with the turbine gallery crane. See Drawing No. 2 816 287. The Government anticipates removal of the crane rail on November 1, 2000.

Disassembly will begin at the turbine end of the rod connection to the turbine shift ring and the forked head at the adjustable lever. Ref Drawings ( 02-501-027 and 02-201-031). With the two ends disconnected the cross head slides out either end and the rods can then be disconnected from the crosshead assembly. The Government will perform this part of the PRV disassembly as part of their own turbine disassembly work.

The following describes the disassembly to the best knowledge of the Government. The Contractor disassembly will begin with removal of the adjustable lever from the end of the double lever, as well as the yoke connecting rods. The bearing caps for the double lever are now removed and the double lever removed. The nut on the top of dashpot piston rod holds the yoke on and can be removed. Removing the upper control valve lever and unbolting the dashpot cover allows the dashpot cover and piston to be removed. Dashpot oil should be removed and the valve cover jacked up about 19 inches to gain access to the jaw coupling. To disassemble the main piston the jaw coupling assembly between the dashpot and the main piston has to be disconnected. This operation requires the disc to be closed and the top cover raised by the dashpot stroke of 19 inches. With the disc closed and blocked from below the auxiliary chamber can be isolated and drain valve opened. Remove the position indicator column and the supporting rod assembly, both are attached to the top of the main piston. With the top cover raised, access is available to the jaw coupling. Nuts holding the dashpot cylinder to the jaw coupling can be removed and the dashpot assembly and top cover can be removed.

With the top cover removed the screw threads to the main compression screw are visible. Thread a nut and tighten to compress the main spring. With the main spring compressed the keyway pin can be removed from the top of the main piston. The jaw coupling can now rotate 90°and be removed together with the compressed spring. Extreme care should be taken with the compressed spring.

The locking ring under the disc can be removed. With the disc still blocked, the disc spindle and main piston can be lifted out of the guides leaving the disc blocked and closed. The piston guide 02-500-871 can be unbolted from the body and removed. The disc should be supported from above, blocking removed and the disc lowered to the supports and the valve seat assembly removed from the valve body. The disc can now be removed. The control valve assembly and levers can be removed at any time.

d. Component Weights.-

| | | | |
|---|---|---|---|
| Connecting Rod to Shifting Ring | 02 300 663 | ---- | 2640 pounds |
| Crosshead and Guide | 02 300 662 | ---- | 3400 pounds |

| | | | |
|---|---|---|---|
| Connecting rod to PRV | 02 500 903 | ---- | 5000 pounds, heads, pins and rod |
| Adjustable lever Assembly | 02 816 290 | ---- | 4850 pounds, lever, adjusting block and pins |
| Double lever | 02 816 286 | ---- | 10,075 pounds |
| Yoke and connecting rods | 02 816 289 | ---- | 3150 pounds |
| Top Cover Assembly | 02 816 283 | ---- | 22,850 pounds |
| Bearing caps | 02 816 283 | ---- | approx. 1400 pounds each |

e. Submittals - The Contractor shall submit the following in accordance with this paragraph and paragraph C.1.3 ( Submittal Requirements):

(1) Schedule of disassembly, rehabilitation and reassembly.
(2) Procedure for disassembly, rehabilitation and reassembly.
(3) Check sheets documenting teardown dimensions.

f. Payment.- Payment for disassembly of the PRV will be included in the lump-sum price bid therefore in the schedule, Item 4 for disassembling of the PRV, which price shall include all labor, materials and equipment necessary to disassemble the PRV and removing the components for rehabilitation from the Powerplant.

C.6.6 Furnishing Critical Components

a. General.- Replacement parts of critical components of the PRV shall be fabricated for possible installation into the PRV. Due to the potential for damage and corrosion the fabricated parts shall be rough finished and final machined after disassembly of the valve and inspection of the mounting surfaces.

b. Components.-- If clearances between existing components are within drawing specifications and damage from contact or erosion is minimal and repairable, then existing components can be reused and the new, fabricated parts will be turned over to the Government for use in other units. Springs will be replaced regardless of existing condition. If cleanup or repair is necessary to the mounting surfaces of the valve piston body, or spindle, the final dimensions of the replacement parts will be adjusted by the Contractor to reflect the new dimensions. Any components not used during the rehabilitation shall be turned over to the Government's representative at the Government Warehouse, Hoover Dam, labeled, tagged and boxed or skid mounted for outdoor storage. The following components shall be furnished by the contractor and shall be available to the contractor for replacement of damaged or out of tolerance existing components.

(1) Bushing, lower piston, sliding surface, control valve, 02-200-831 is currently a high leaded tin bronze, equivalent to alloy C93700. Replacement part shall be machined from

ASTM B271-96 UNS C93700. Rough machining shall provide sufficient excess material to allow a cleanup cut or repair to the receiving parts.

(2) Seat, lower piston, control valve 02-200-817 is a forged 18-8 stainless steel, alloy 302, nitrided for hardness. Replacement parts shall be machined from cast ASTM-A743-98 UNS-J92600 or forged ASTM-A-743-98 S30400 , Brinell hardness 200. Rough machining shall provide sufficient excess material to allow a cleanup cut or repair to the receiving parts. Final machining of the seat shall be to match the repaired receiving components.

(3) Bushing, upper piston, sliding surface, control valve, 02-500-918 (5) is currently a high leaded tin bronze, equivalent to alloy C93700. Replacement part shall be machined from ASTM B271-96 UNS C93700. Rough machining shall provide sufficient excess material to allow a cleanup cut or repair to the receiving parts.

(4) Control valve tip and seal 02-500-918 (4) and 02-200-816 shall be an integral piece, centrifugally cast and machined from A271-96 UNS C95500 in accordance with USBR Drawing No. 45 - D - 19578.

(5) Bushing, auxiliary chamber guide, main piston, 02-500-871 (3) is currently a high leaded tin bronze, equivalent to alloy C93700. Replacement part shall be machined from ASTM B271-96 UNS C93700. Rough machining shall provide sufficient excess material to allow a cleanup cut or repair to the receiving parts.

(6) Bushing, auxiliary chamber sleeve, main piston, 02-816-282 (4) is currently a high leaded tin bronze, equivalent to alloy C93700. Replacement part shall be machined from ASTM B271-96 UNS C93700. Rough machining shall provide sufficient excess material to allow a cleanup cut or repair to the receiving parts.

(7) Bushing, lower auxiliary chamber/spindle guide, main piston, 02-500-871 (4) is currently a high leaded tin bronze, equivalent to alloy C93700. Replacement part shall be machined from ASTM B271-96 UNS C93700. Rough machining shall provide sufficient excess material to allow a cleanup cut or repair to the receiving parts.

(8) Bushing, lower auxiliary chamber/spindle sleeve, main piston, 02-816-279 (5) is currently a high leaded tin bronze, equivalent to alloy C93700. Replacement part shall be machined from ASTM B271-96 UNS C93700. Rough machining shall provide sufficient excess material to allow a cleanup cut or repair to the receiving parts.

(9) Bushing, lower spindle guide, main piston, 02-817-254 (36) is currently a high leaded tin bronze, equivalent to alloy C93700. Replacement part shall be machined from ASTM

B271-96 UNS C93700. Rough machining shall provide sufficient excess material to allow a cleanup cut or repair to the receiving parts.

(10) Bushing, lower spindle sleeve, main piston, 02-816-279 is currently a high leaded tin bronze, equivalent to alloy C93700. Replacement part shall be machined from ASTM B271-96 UNS C93700. Rough machining shall provide sufficient excess material to allow a cleanup cut or repair to the receiving parts.

(11) Seat, Disc, stationary 02-816-280 (13) is a forged 18-8 stainless steel, alloy 302, nitrided for hardness. Replacement parts shall be machined from cast ASTM-A743-98 UNS-J92600 or forged ASTM-A-743-98 S30400 , Brinell hardness 200. Rough machining shall provide sufficient excess material to allow a cleanup cut or repair to the receiving parts. Final machining of the seat shall be to match the repaired receiving components.

(12) Seat, Disc, moving 02-816-280 (14) is a forged 18-8 stainless steel, alloy 302, nitrided for hardness. Replacement parts shall be machined from cast ASTM-A743-98 UNS-J92600 or forged ASTM-A-743-98 S30400 , Brinell hardness 200. Rough machining shall provide sufficient excess material to allow a cleanup cut or repair to the receiving parts. Final machining of the seat shall be to match the repaired receiving components.

(13) Ring, Facing, stationary 02-816-280 (1) is a forged steel 1040 Replacement part shall be machined from ASTM B271-96 UNS C95500, Aluminum-Bronze. Rough machining shall provide sufficient excess material to allow a cleanup cut or repair to the receiving parts. Final machining of the ring shall be to match the repaired receiving components.

(14) Bushing, Main cylinder, main piston, 02-300-652 is currently a high leaded tin bronze, equivalent to alloy C93700. Replacement part shall be machined from ASTM B271-96 UNS C93700. Rough machining shall provide sufficient excess material to allow a cleanup cut or repair to the receiving parts.

Spring specifications:

(15) Compression spring, main piston 02-842-314, item 6 One required
Helical wound round steel spring wire, 2.250 inch diameter wire, 8 1/4 inch mean diameter, 8 1/2 active coils, about 10 ½ total coils, 28 inch free length, 24 inch solid height (max), 7700 lbs/inch deflection rate, maximum load ,26000 pounds, ends closed and ground square.

The dashpot piston incorporates three springs, two for the check valves and one for the plunger/re-close valve. All three springs will be replaced in accordance with the spring specifications. A new plunger valve spring shall be fabricated in accordance with drawing 02-816-288 (11) and two check valve springs shall be fabricated in accordance with 02-851-675 (5) .

(16) Reclose valve spring, dashpot piston 02-816-288 item 11 One required.
Spring steel, 0 .250 inch diameter, 1 3/8 inch mean diameter, 13 active coils, about 14 ½ total coils, 5 ½ inch free length, 3 5/8 inch solid height, 160 lbs/inch deflection rate, ends closed and ground square.

(17) Check valve spring, dashpot piston 02-851-675 item 5 Two required.
Spring steel, 0 .135 inch diameter #10 gauge, 1 inch mean diameter, 19 active coils, about 21 total coils, 5 inch free length, 2 7/8 inch solid height, 25 lbs/inch deflection rate, ends closed and ground square.

Summary of Critical Components to be Furnished

| Description | Drawing No | Item No | Material |
|---|---|---|---|
| Bushing, 13.5" piston, sliding guide, Control valve | 02-200-831 | | Bronze C937, |
| Valve seat, 14.5" Control valve | 02-200-817 | | Stainless 304 |
| Upper Piston sliding ring Control Valve | 02-500-918 | 5 | Bronze C937 |
| Piston Tip, plus seal ring Control Valve | 45-D-19578 | 4 | Aluminum-Bronze C95500 |
| Guide, 30" OD Main piston | 02-500-871 | 3 | Bronze C937 |
| Guide, 18" ID Main Piston | 02-500-871 | 4 | Bronze C937 |
| Sleeve, 30" sliding Main Piston | 02-816-282 | 4 | Bronze C937 |
| Guide, 14.5" ID Main Piston, lower | 02-817-254 | 36 | Bronze C937 |
| Guide, 14.5" OD sliding Spindle | 02-816-279 | 3 | Bronze C937 |
| Guide, 18" OD , sliding Spindle at auxiliary chamber | 02-816-279 | 5 | Bronze C937 |

| Description | Drawing No | Item No | Material |
|---|---|---|---|
| Cylinder, 71" ID<br>Main Piston | 02-300-652 | | Bronze C937 |
| Disc seat, 60" ID, fixed forged | 02-816-280 | 13 | Stainless 304 |
| Disc seat, 57" ID, moving, forged | 02-816-280 | 14 | Stainless 304 |
| Facing Ring, for stationary seat 66" OD | 02-816-280 | 1 | Aluminum-Bronze C95500 |

c. Submittals - The Contractor shall submit the following in accordance with this paragraph and paragraph C.1.3 (Submittal Requirements):

(1) Purchase Orders of critical components with drawings used for purchase.
(2) NDE reports with defect mapping
(3) Dimensional report of as shipped component dimensions

d. Payment.- Payment for critical components will be included in the lump-sum price bid therefore in the schedule, Item 5, for which price shall include all labor, materials and equipment necessary to furnish and delivery of centrifugal castings, stainless steel castings and forgings, aluminum bronze castings and springs.

C.6.7 REHABILITATION OF PRV CONTROL VALVE

a. General.--The 13-inch-diameter control valve functions as the pilot operator for the main piston. The main piston is held up (disc closed) until the pilot valve releases pressure from the underside of the main piston. When pressure below the main piston is released, the pressure above the disc moves the disc down and releases the flow from the turbine. The control valve is itself pilot operated with the valve stem opening the vent and then the pilot piston will move up and open the regulator route for the main valve. Drawing 02-500-916 shows the assembly of the control valve. The control valve shall be disassembled and inspected for wear, corrosion, damage and any other abnormal conditions that may affect the reliability and or serviceability of the control valve. As a minimum all packings and gaskets shall be replaced and sliding surfaces honed, set screws and screws to lock bushings into position shall be replaced, the rehabilitated control valve shall be retested for leakage. Critical sealing surfaces (rings and seats) shall be fabricated and available for replacement. Components to be fabricated will include 02-200-831, 02-200-817, and 02-500-918 (5). See Paragraph C.6.6, Furnishing Critical Components. Control valve tip and seal shall be fabricated as an integral piece in accordance with USBR Drawing No. 45-D-19578. If clearances of the existing components are within drawing specifications, the

fabricated parts will be turned over to the Government for use in other units. Specifications for the existing PRV materials are given on the drawings. Drawings indicate the control valve body is QQ-S-681b class 2, cast steel, the piston is cast iron. If the exact composition of the material is necessary to determine a repair procedure, the Contractor shall perform a chemical analysis of a small sample of the PRV component being repaired.

b. Rehabilitation.--

(1) Stem and stem seat.-- The pilot seat 02-500-918, item 9, and stem seat 02-500-918, item 5, shall be inspected for damage and fit. Inspection report shall be recorded. If seat surfaces are in satisfactory condition the seat and seal shall be ground together to form a tight seat. Grinding shall remove less than a total of 0.05 inch between the two surfaces.

(2) Sliding surfaces of the upper control valve piston. – The clearance between the piston ring and the valve body sleeve shall be measured and recorded. A clearance greater than 0.015 inch shall require installation of the fabricated replacement of 02-500-918, item 5, 02-200-834 shall be honed as necessary to restore a clean, smooth surface to the stationary surface. The new sliding surface shall be turned to provide a 0.012 +.003 -.002 inch clearance between the parts.

(3) Sliding surfaces of the lower control valve piston.- The clearance between the lower piston ring and the valve body lantern sleeve shall be measured and recorded. A clearance greater than 0.009 inch shall require installation of the fabricated replacement of 02-200-831, 02-200-833 shall be honed as necessary to restore a clean, smooth surface to the stationary surface. The new sliding surface shall be turned to provide a 0.005 +.004 -.000 inch clearance between the parts.

(4) Stem packing.-- Chevron packing shall be replaced at the stem/top cover (02-817-259, item 501 ), at stem/high gland (02-500-918, item 11) and valve piston/valve cover (02-817-259, item 502).

(5) Rubber packing.- Small diameter, rubber ring packing shall be replaced during reassembly of the control valve. Packing is shown on drawing 02-500-916 behind the lower stationary valve seat, the sliding piston seal ring, below the valve cover. If other packing is discovered during disassembly it shall be replaced.

c. Submittals - The Contractor shall submit the following in accordance with this paragraph and paragraph C.1.3 ( Submittal Requirements):

(1) Examination reports of damage and corrosion of components and as found clearance measurements

(2) Deviation reports and repair procedures, if necessary
(3) Clearances of rehabilitated components

d. Payment.- Payment for rehabilitation of control valve will be included in the lump-sum price bid therefore in the schedule, Item 6 for rehabilitation of PRV, which price shall include all labor, materials and equipment required to rehabilitate the PRV.

C.6.8 REHABILITATION OF OPERATING LINKAGE, PRV

a. General- All bushings shall be removed from their mounting to check backing metal for integrity, measured, rehabilitated and reassembled. Linkages (arms and rods) shall be inspected for wear, corrosion, damage and any other abnormal conditions that may affect the reliability and or serviceability, cleaned and painted.

b. Rehabilitation- Corrosion to the backing or support structures shall be cleaned, honed and repaired. After repair and build-up a machine cut shall be taken to restore to original dimensions. The bushings shall be checked for wear, concentricity and damage, clearance shall be calculated from measurements of opposing bearing surfaces. If clearances exceed maximum allowable from what is shown on the drawings, a deviation report will be submitted to the Government with repair and replacement options and pricing.

The following bushings and pins will be examined:
(1) connecting rod to shift ring, rod end pins
(2) connecting rod to PRV , rod end pins
(3) crosshead and guide
(4) double lever bearings and caps
(5) yoke connecting rods

c. Painting.- Rods, levers and arms shall be sand blasted to near white metal and painted in accordance with Paint C.7.1.

d. Submittals - The Contractor shall submit the following in accordance with this paragraph and paragraph C.1.3 ( Submittal Requirements):

(1) Examination reports of damage and corrosion of components and as found clearance measurements
(2) Deviation reports and repair procedures, if necessary
(3) Clearances of rehabilitated components

e. Payment.- Payment for rehabilitation of PRV operating linkages will be included in the lump-sum price bid therefore in the schedule, Item 7), which price shall include all labor,

materials and equipment necessary for rehabilitation of the linkages, associated bearing surfaces and pins.

C.6.9 REHABILITATION OF DASHPOT AND DASHPOT COVER, PRV

a. General.-- The dashpot and dashpot cover are the devices which allow the PRV disc to open with a fast turbine gate closure but with a normal, slow, gate movement, the PRV does not open. A check valve and a re-close plunger valve are incorporated within the dashpot piston. The plunger is adjustable from an external rod end at the top of the yoke. The dashpot plunger valve position will be noted prior to disassembly. Dashpot oil shall be removed and disposed . Check valves and plunger valve shall be disassembled and springs replaced and seats ground. New hydraulic oil shall be furnished and dashpot refilled. The dashpot will be rehabilitated and the same tests conducted after reassembly.

b. Rehabilitation.- The clearance between the outer diameter of the dashpot cylinder 02-500-925 (7) and the top cover bushing 02-816-283 and 02-842-327, (1) shall be measured and recorded. Dashpot cylinder and bushing shall be honed as necessary to restore a concentric surface to the sliding surface. A clearance greater than 0.010 inch or damage to the bushing shall require a defect report for disposition by the Government including options for repair, replace and pricing.

Dashpot piston assembly 02-816-288 consists of the piston with three piston rings, two check valves and the plunger re-close valve in the center of the piston. The dashpot piston assembly shall be disassembled, cleaned, inspected and refurbished. Overhaul of the piston shall entail an examination of the dashpot bore for wear and damage, cleanup of the bore by honing, installation of new main rings and a new non-metallic middle seal ring. All oil passages shall be cleaned and examined for damage, passages shall be unobstructed and smooth. Seats for check valves and plunger valve shall be lapped/ground to provide a tight seat. Piston with refurbished check valves, plunger valve and piston rings shall be pressure tested, and leak tested with the dashpot cylinder prior to reassembly into the PRV. Contractor shall submit pressure and leak test plan to the Government. Contractor shall submit results of the leak tests.

c. Materials.- Piston rings shall be high density polypropylene middle ring/seal. Main rings shall be cast iron.

d. Submittals - The Contractor shall submit the following in accordance with this paragraph and paragraph C.1.3 ( Submittal Requirements):

(1) Examination reports of damage and corrosion of components and as found clearance measurements,

(2) Deviation reports and repair procedures, if necessary, check valve pressure leak test plan, and test results.
(3) Clearances of rehabilitated components

e. Payment.- Payment for rehabilitation of dashpot will be included in the lump-sum price bid therefore in the schedule, Item 8, which price shall be include all labor, materials and equipment necessary for cleaning, honing, cylinder, replacing piston rings, rebuilding check and re-close valves and grinding seats for the valves.

C.6.10 REHABILITATION OF MAIN PISTON, PRV

a. General.--The 71-inch-diameter main piston is the primary device holding the disc closed. The main valve is held up (disc closed) until the control valve releases pressure from the underside of the main valve. When pressure is released, the pressure on the disc moves the disc down and releases the flow from the turbine. Drawing 02-501-027 shows the assembly of the main piston.

b. Disassembly- The piston and spindle shall be disassembled, cleaned and inspected for wear and damage. NDE, magnetic particle examination shall be made.

c. Rehabilitation- As a minimum, all packings and gaskets shall be replaced and sliding surfaces honed. Set screws and bushing fasteners shall be replaced as it is likely they will be inadvertently damaged during removal. Additionally, critical spindle sleeves, guides and the 71-inch-diameter cylinder shall be fabricated and available for replacement. See paragraph C.6.6 (Furnishing Critical Components). Piston surfaces and mounting surfaces behind the cylinder, except metal to metal contacting surfaces, shall be sand blasted to near white SSPC-10 and painted. See Paint paragraph C.7.1. The existing clearance between the 71-inch-diameter main piston ,02-816-282 (1) and the piston cylinder, 02-300-652, shall be measured and recorded. Damage to the cylinder and/or piston shall be noted and a defect report provided to the Government. Cylinder shall be restored to a surface condition compatible with tight operation of packings or the replacement cylinder will be installed.

The clearance between the piston spindle sleeves and the spindle bushings shall be measured and recorded. A clearance greater than 0.012 inch or damage to the bushing shall require installation of the fabricated bushing replacements. The spindle sleeve shall be honed as necessary to restore a concentric surface to the sliding surface. The new stationary bushings shall be turned to provide a 0.008 +.003 -.002 inch clearance between the parts.

The following bushings shall be removed to allow examination of the mounting metal:
71-inch-diameter cylinder
spindle guides, 30-inch-diameter, 18-inch-diameter, 14½-inch-diameter

Rings and glands shall be examined for damage and all packings shall be replaced including at the following locations:

indicator column
supporting column
main piston 71-inch-diameter
spindle guides 30-inch, 18-inch, 14.5-inch-diameter

Rubber seal rings were provided to prevent seepage between mating parts and shall be replaced.

d. Materials- Specifications for the existing PRV materials are given in the drawings. Drawings indicate the spindle is forged steel, piston is cast steel , current designation would be similar to ASTM A27, 71 inch diameter cylinder is Ampco A3 (UNS C95300) and the spindle guides are UNS C93700. If the exact composition of the material is required for development of a repair procedure, the Contractor shall perform a chemical analysis of a small sample of the PRV component being rehabilitated.

e. Submittals - The Contractor shall submit the following in accordance with this paragraph and paragraph C.1.3 ( Submittal Requirements):

(1) Examination reports of damage and corrosion of components and as found clearance measurements
(2) Deviation reports and repair procedures, if necessary
(3) Clearances of rehabilitated components

f. Payment.- Payment for rehabilitation of the main piston of the PRV will be included in the lump-sum price bid therefore in the schedule, Item 9, which price shall include all labor, materials and equipment necessary for disassembly, cleaning, examination, rehabilitation and measurements of the main piston.

C.6.11 REHABILITATION OF MAIN DISC, BODY SEAT , PRV

a. General.--The 60-inch-diameter main disc is the primary closure device. Stationary seals and seals on the disc shall be examined and sealing surfaces replaced or repaired.

b. Rehabilitation.-The disc has a nitrided stainless steel seal ring and is opposed by a body seal ring of the same material. The facing ring is a forged ASTM 1040, saw cut before installation and then the joints welded in place. The contractor shall rehabilitate the surfaces by overlay welding or install the replacement rings to restore the sealing surfaces and facing ring to as-new dimensions and finish.

c. Replacement.- The facing ring and seal rings shall be removed and the mounting metal examined for corrosion or other damage. A new valve body seal and a new disc seal ring shall be fabricated and available for installation. Drawing 02-816-280 items 13 and 14. The facing ring 02-816-280, item 1, shall be fabricated and available for installation. New fasteners shall be installed into the facing ring and ground flush. Disc seals shall be ground to provide a tight seal when disc is in closed position.

d. Submittals - The Contractor shall submit the following in accordance with this paragraph and paragraph C.1.3 ( Submittal Requirements):

(1) Examination reports of damage and corrosion of components and as found clearance measurements
(2) Deviation reports and repair procedures, if necessary
(3) Clearances of rehabilitated components

e. Payment.- Payment for rehabilitation of main disc will be included in the lump-sum price bid therefore in the schedule, Item 10, which price shall include all labor, materials and equipment necessary for examination, cleaning, disassembly of disc seals and facing plate, rehabilitation or replacement of seals and final measurements of seal clearances

## C.6.12 REPAIRING CAVITATION/CORROSION DAMAGE TO PRV BODY, CONTROL VALVE BODY AND ENERGY DISSIPATERS

a. General.-- The Contractor shall repair cavitation/corrosion pitting damage to the PRV body, control valve body and energy dissipaters. The contractor shall restore the PRV, control valve and energy dissipaters within the water passages to a hydraulically smooth condition as shown on Allis Chalmers drawings No. 02-500-870, 02-816-298, 02-817-254 and 02-500-916 .

b. Cavitation damage examination.-- The Contractor shall provide a checklist to ensure that all parts of the PRV are inspected and that all areas of cavitation damage are recorded on sketches or in tabular form prior to repairing the damage. The chamber shall be divided in zones or quadrants and damage report locations shall refer to those zones.

The records shall include the following:
(1) Date of examination
(2) Overall area of pitting, as well as the average depth and maximum depth.
(3) Dimensions and locations of structural damaged areas
(4) Digital photographs of the damaged area and of subsequent repairs. Reference number and dimension of pitted area shall be marked and visible in the digital photo. (.Jpg or .bmp format)

In addition, the Contractor shall also check for corrosion, cracks, or other damage. The Contractor shall notify the Government of any flaws or damage when found.

c. Plan and repair method.-- The contractor shall perform an examination and assessment of the damage of the PRV and submit a recommended plan and method for repairing the damage to original conditions. Weld metal used to repair PRV components shall be 309L for steel repair in the area from the disk to 6 feet below the disk, carbon steel rod for repair in the lower areas of the energy dissipaters and Ampco -Trode 10 for repair of Bronze alloys. Specifications for the PRV materials are given in the drawings, drawings indicate the valve body is QQ-S-681b class 2 cast steel. If the exact composition of the material is not known, the Contractor shall perform a chemical analysis of a small sample of the PRV component being repaired.

The Government estimates 2 pounds of weld metal to repair the control valve, 70 pounds to repair the valve body and 2000 pounds to repair the energy dissipation chamber. Contractor shall grind surfaces to smooth contours to reduce possibility of discontinuities creating cavitation sources in the future. Carbon steel surfaces of the energy dissipaters shall be painted in accordance with C.7.1 Paint.

d. Submittals - The Contractor shall submit the following in accordance with this paragraph and paragraph C.1.3 ( Submittal Requirements):

(1) Examination report and cavitation mapping
(2) Repair plan and weld repair procedures

e. Payment.- Payment for cavitation repairs will be included at the unit price bid therefore in the schedule, Item 11, which price shall include all labor, materials and equipment necessary for volume of cavitation repaired.

C.6.13 TESTING OF REHABILITATED PRV

a. General .-- The rehabilitated PRV shall be dry tested, manually tested and load rejection tested to assure the Government of proper operation and setup of the operating linkages, dashpot re-close, control valve linkages, auxiliary space operation, general performance of the rehabilitated valve and leakage rates.

Testing shall be accomplished in 4 phases:
(1) Dimension checks of linkages, valves, settings.
(2) Dry-run operation without watering up the turbine, includes auxiliary space operation
(3) Watered up PRV, manual operation of PRV control valve, check of binding, re-close rate, operation, leakage assessment
(4) Load rejection tests, watered, turbine operational.

b. Contractor shall develop a phased test plan similar to the pre-shutdown and pre-teardown testing of the PRV paragraphs C.6.3 and C.6.4. Each phase of testing must be witnessed and accepted by the Government before proceeding to the next test phase.

c. Submittals - The Contractor shall submit the following in accordance with this paragraph and paragraph C.1.3 (Submittal Requirements):

(1) Test procedures and equipment list for operational testing
(2) Data Sheets with recorded measurements Phase 1
(3) Condition report of dry-run
(4) Strip chart of manual test runs with proper documentation of test conditions
(5) Assessment of leakage rates
(6) Test results of auxiliary space test
(7) Strip chart of load rejection test runs with proper documentation of test conditions and any as-left settings.

d. Payment - Payment for testing will be made at the lump sum price bid therefore in the schedule, which price shall include all labor, materials and equipment necessary for testing the PRV valve and providing the required test reports.

SUBSECTION C.7 - COATINGS

C.7.1 COATINGS, GENERAL

a. General. - The Contractor shall submit all purchase orders, manufacturer's product data and application sheets, and certifications; furnish all materials; clean surfaces; and apply the approved protective coatings in accordance with this paragraph and paragraph C.7.2 (Coating Tabulations). All exterior paint's colors shall be matched with the existing PRV colors.

Coating materials required by these specifications, but are not covered or listed in the coating tabulations, shall be subject to certification, sampling, and testing in accordance with subparagraph c. (Coating Materials Approval) below. Methods of surface preparation and application shall be in accordance with the manufacturer's instructions and the general requirements of these specifications.

(1) Protection of newly coated, adjacent surfaces, and equipment. - Items or surfaces not to be coated, but which are adjacent to surfaces to be cleaned and coated, shall be protected against contamination and damage during the cleaning and coating operations. This includes surfaces and equipment which are subject to contact by airborne contaminants as well as those which are in physical contact with the areas being cleaned or coated. Examples include: vehicles, light fixtures, mechanical and electrical equipment, nameplates, and wet and newly coated surfaces.

Newly coated items shall not be moved until the coating is dry through. A coating film shall be considered dry through when it cannot be distorted or removed by exerting substantial, but less than maximum, pressure with the thumb and turning the thumb through 90 degrees in the plane of the coating film.

(2) Interior coating of machinery and equipment. - Unless otherwise specified, the Contractor will not be required to disassemble machinery, equipment, or other metalwork for the purpose of coating the interiors.

(3) Compatibility. - Coating system components shall be compatible products of the same manufacturer.

(4) Damage caused by the Contractor. - Any items or surfaces which are in the Contracting Officer's opinion damaged or contaminated by the Contractor's operations shall be returned to their original condition by and at the expense of the Contractor.

Before top coating any coated surfaces, the Contractor shall reclean any exposed surfaces and apply coating materials as necessary to restore damaged or defective surfaces to the

specified condition. Manufacturer coated equipment shall be restored to the original appearance of the equipment by appropriate methods.

Temporary or permanent welding for the convenience of the Contractor shall not be permitted on areas where the welding will damage other protective coatings, unless the areas of coatings which would be damaged are accessible for repairing and inspection.

b. References. - The publications with the approval or revision date listed below form a part of this specification to the extent referenced:

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

| Standard | Title |
|---|---|
| ASTM A 380-99 | Standard Practice for Cleaning, Descaling, and Passivation of Stainless Steel Parts, Equipment, and Systems |
| ASTM D 522-93 | Standard Test Methods for Mandrel Bend Test of Attached Organic Coatings |
| ASTM D 870-97 | Standard Practice for Testing Water Resistance of Coatings Using Water Immersion |
| ASTM D 1141-98 | Standard Specification for Substitute Ocean Water |
| ASTM D 2244-93 | Standard Test Method for Calculation of Color Differences From Instrumentally Measured Color Coordinates |
| ASTM D 2794-94 | Standard Test Method for Resistance to Organic Coatings to the Effects Rapid Deformation (Impact) |
| ASTM D 3359-97 | Standard Test Methods for Measuring Adhesion by Tape Test |
| ASTM D 3363-92 | Standard Test Method for Film Hardness by Pencil Test |
| ASTM D 4060-95 | Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser |
| ASTM D 4541-95 | Standard Test Method for Pull-Off Strength of Coating Using Portable Adhesion Testers |

| Standard | Title |
|---|---|
| ASTM D 5532-94 | Standard Specification for Micaceous Iron Oxide Pigments Paint |

SOCIETY FOR PROTECTIVE COATINGS (SSPC)/NACE INTERNATIONAL (NACE)

| Standard | Title |
|---|---|
| NACE RP 0188-99 | Standard Recommended Practice - Discontinuity (Holiday) Testing of New Protective Coatings on Conductive Substrates |
| NACE RP 0287-95 | Standard Recommended Practice - Field Measurement of Surface Profile of Abrasive Blast Cleaned Steel Surfaces Using a Replica Tape |
| SSPC-AB1-91 | Abrasive Specification No. 1 - Mineral and Slag Abrasives |
| SSPC-PA2-96 | Measurement of Dry Paint Thickness with Magnetic Gages |
| SSPC-SP10/NACE No. 2-94 | Joint Surface Preparation Standard - Near-White Blast Cleaning |
| SSPC-SP12/NACE No. 5-95 | Joint Surface Preparation Standard - Surface Preparation and Cleaning of Steel and Other Hard Materials by High- and Ultrahigh-Pressure Water Jetting Prior to Recoating. |
| SSPC-VIS 1-89 | Visual Standard for Abrasive Blast Cleaned Steel (Standard Reference Photographs) |
| SSPC-VIS 4(I)/ NACE No. 7-98 | Interim Guide and Visual Reference Photographs for Steel Cleaned by Water Jetting |

c. Coating materials approval. -

(1) General. - The Contractor shall submit for approval, complete and legible copies of product data and application sheets, purchase orders, material certifications, and related materials and qualification of coating applicators, as specified herein. At the Contractor's option, the RSN for coatings may be divided into several individual submittals composed of one or more materials. Each submittal will be reviewed for approval individually.

Product data and application sheets, purchase orders, required certifications, MSDS, and other submittals, shall be submitted in accordance with this paragraph and paragraph C.1.3 (Submittal Requirements).

(2) Submittals. - other submittals, shall be submitted in accordance with this paragraph and paragraph C.1.3 (Submittal Requirements).

(2) Submittals. -

(a) Transmittal letter. - In addition to the requirements of paragraph C.1.3 (Submittal Requirements), the Contractor's Transmittal Letter shall identify each item to be coated for each submittal and resubmittal and shall include the following information:

(aa) Coating tabulation number.

(bb) Item name or sub-letter and sub-number of the specific item to be coated.

(cc) Material name or material option number in tabulation to be applied.

(b) Product data and application. - Manufacturer’s product data and application sheets for coating material to be applied.

(c) Purchase orders. - Purchase orders shall contain the following information for the represented material:

(aa) Supplier’s name, address, and phone number, purchase order number, and purchase order date.

(bb) Manufacturer’s name, address, and phone number.

(cc) Batch number(s) for each material, except thinners.

(dd) Quantities ordered for each material, except thinners.

(d) Manufacturer’s certification of compliance. -

(aa) The certification shall state that the material is of the same composition and formulation to meet physical and performance test results for one of the following:

1. Submitted batch or previously tested batch materials complies with these specifications.

2. Submitted batch materials are unchanged from previously tested batch materials that complies with manufacturer's quality control (QC) and quality assurance (QA) programs.

3. Submitted batch materials complies with manufacturer's quality control (QC) and quality assurance (QA) programs as listed on product data and application sheets.

(bb) Manufacturer's certification of compliance for represented material shall contain following information:

1. Manufacturer's name, address, and phone number for each material.

2. Batch number(s) for each material, except thinners.

3. Quantities ordered for each material, except thinners. Quantity of entire batch manufactured is not acceptable, unless entire batch is greater than or equal to the quantity delivered to the Project site.

4. Signed and dated by manufacturer's technical representative.

(e) Specific material certification of compliance and documentation. - The Contractor shall submit the following specific manufacturer/supplier certification of compliance or other specific documentation for the following materials:

(aa) Abrasive materials. - Abrasive materials used in surface preparation shall be certified in accordance with subparagraph C.7.1.e (Preparation of surfaces).

(bb) Micaceous iron oxide (MIO). - Materials containing MIO products shall be certified in accordance with subparagraph C.7.1.d (Materials).

(f) "Or equal" material. - The Contractor may propose to use an "or equal" material for a "brand name or equal" product specified and described by a coating category. The "or equal" material will be evaluated on material composition, surface preparation, and plan of application. The Contractor shall submit the following data and documentation:

(aa) Product data and application sheets.

(bb) Manufacturer's certifications.

(cc) Performance capabilities to meet or exceed the requirements listed in the associated coating category.

(dd) Manufacturer's certified test reports for coating or coating system substitution to equal or exceed the appropriate category performance requirements.

(ee) Certified testing reports from an independent laboratory.

(g) Qualification of coating applicators. - Each coating applicator shall be either trained or skilled and experienced in the application of each coating material which they will apply under this contract. The Contractor shall submit written evidence that each coating applicator meets the special standards of responsibility listed below for each coating material applied.

The Contractor shall submit for approval either (aa) or (bb) requirements for each applicator and coating material as follows:

(aa) Data showing the applicator has successfully completed training in the use of the coating material on applications similar to those specified in these specifications.

(bb) Data showing that the applicator is skilled and experienced in the application of the coating material under conditions and with materials similar to those specified in these specifications.

d. Materials. - Materials shall meet or exceed the salient characteristics for composition, physical, and performance requirements listed in the coating categories in paragraph C.7.2 (Coating Tabulations and Categories).

(1) Containers. - All materials shall be purchased in containers not larger than 5 gallons as packaged by the manufacturer unless the Contractor is equipped at the coating site to handle and thoroughly mix coatings which are delivered in larger containers. All materials shall be delivered to the jobsite in their original unopened containers labeled with the manufacturer's name, brand, batch number, date of manufacture, and any special instructions. Damaged, leaking, or unlabeled containers shall be rejected and removed from the jobsite.

(2) Shelf life of coating material. - Coating material shall not be used that exceeds the manufacturer's specified storage stability period. Materials with expired shelf life shall be removed from the jobsite.

(3) Volatile organic compounds (VOC). - The volatile organic compound (VOC) content of all specified coatings systems shall not exceed the maximum VOC content permitted by Federal, State, and local air pollution control regulations. VOC content for the individual coatings or coating systems are listed in the coating categories and are identified as either "as supplied" or "reduced for spray." Thinning of coating material shall not exceed the allowable maximum VOC limit.

(4) Abrasives. - The abrasives used to prepare the specified surfaces shall meet the requirements of SSPC-AB 1. The abrasives shall be either Type I or Type II, Class A material. Abrasive material shall not exceed toxicity threshold limits for hazardous metals. The abrasive's grade shall be the grade required to produce the surface profiles specified or recommended by the manufacturer.

(5) Micaceous Iron Oxide (MIO) products. - Coating materials containing MIO products shall conform to ASTM D 5532, Type 1, at 80 percent minimum lamellarity, 85 percent minimum iron (III) oxide ($Fe_2O_3$) content with soluble salt content less than 0.04 percent.

e. Preparation of surfaces. - For metallic or coated surfaces in which surface preparation has been completed but the substrate has flash rusted, corroded, become contaminated, or improperly cured, the Contractor shall re-clean or perform additional surface preparation to the requirements of this paragraph.

(1) Surface profile. -

(a) Specified surface profile. - Where abrasive blasting is specified for a given service environment, the profile shall be as recommended by either the coating's manufacturer(s) or as specified in the coating category or tabulation.

(b) Non-specified surface profile. - Where the surface profile is not specified, the blasted surface shall have the following profile for the listed service environments:

(aa) Atmospheric. - 1 mil or greater angular profile and shall be less than the specified millage of the first applied coat.

(bb) Burial and immersion. - Angular profile between 1.5 to 3-mils.

(c) Testing of surface profile. - Prior to coating application, the surface profile of abrasive blasted steel surfaces shall be measured for compliance to manufacturer's instructions or these specifications in accordance with NACE RP 0287; except that, measurement of less than 1.5 mil is permitted; provided that, course replica tape suitable for 0 to 2 mil range is used.

(d) Soluble salt testing. - Measure soluble salts or chloride specific ion by methods with a minimum lower threshold limit of 5 micrograms per square centimeter ($\mu g/cm^2$) or 5 ppm.

(aa) Test ferrous substrate surfaces by conductivity or chloride specific ion method by one of the following:

1. Elcometer 130 Salt Meter Kit manufactured by Elcometer, 1893 Rochester Industrial Drive, Rochester Hills MI 48309, telephone 248-650-0500; or equal.

2. Chlor*Test kit manufactured by Chlor*Rid International Inc., P.O. Box 908, Chandler AZ 85244, telephone 800-422-3217; or equal.

(bb) Test substrate surface after preparation to include corrosion pits for soluble salts or chloride specific ion. Perform a minimum of two tests per 1,000 square feet.

(dd) Acceptance Criteria. - Do not exceed 7 micrograms per square centimeter ($\mu g/cm^2$) or 7 ppm for immersion service, abrasive media, and water used in water jetting.

(e) Surface cleanliness. - After surface preparation, steel surfaces shall be compared to SSPC-VIS 1 visual reference.

(2) Metalwork and equipment, and existing metalwork and equipment. - Surface preparation shall be in accordance with these specifications and as indicated in the coating tabulation. Any coatings not required by and not shown in the coating tabulation shall be removed from the surfaces by suitable and effective means, unless otherwise directed. All surfaces not specifically covered shall be prepared by methods common to industry practices for the particular surface.

(a) Surface. - Weld spatter, slag, burrs, porosity, sharp edges, pits, laminations, crevices, or other irregularities shall be removed or repaired before cleaning by light etch blasting, hand, or power tools.

(b) Specific surface preparation. - Following removal or repair of surface irregularities, specific surface preparation shall be by one of the following methods, as specified for each item in the coating tabulation:

Method C. - Surface preparation shall be in accordance with SSPC-SP10/NACE 2. Wet abrasive blasting is permitted; provided that, surface cleanliness meets requirements of Section 2 of SSPC-SP10/NACE 2. Feather existing coating edge to tie-in with coating material specified in these specifications with power tool using non-woven pad..

Method G. - Surface preparation shall be in accordance with ASTM D 380.

f. Application. -

(1) General material preparation and application. - Materials shall be thoroughly mixed at the time of application, and shall be clean and free from moisture.

All Contractor-applied coatings exposed to public view shall display a uniform texture and color appearance.

Thinning of coatings to facilitate satisfactory application shall be kept to a minimum and shall not exceed the manufacturer’s recommendation or the maximum VOC limit. Only manufacturer’s approved thinners for the type of coating shall be used.

(2) Suspension of coating operations due to weather. - Coating application shall be suspended when impending weather conditions are unfavorable for coating application and proper cure. Conditions shall be based on the more restrictive requirement of either the manufacturer's recommendations or these specifications.

(3) Environmental temperature and humidity restrictions. - The application and curing of individual coating systems shall be restricted within the maximum and minimum specified temperatures and relative humidities applicable to that coating system. The temperature and humidity limits shall be as defined on the coating category sheets or the manufacturer’s product data sheets, whichever is more restrictive. The following are temperature and humidity restrictions:

(a) For surfaces that are not thoroughly dry at application time, the substrate shall be heated to drive off any moisture present before application.

(b) The surfaces shall be a minimum of 5 degrees Fahrenheit above the dewpoint temperature at time of coating application.

(c) Surfaces shall be free of moisture, frost, and ice.

(d) Air and substrate temperatures shall be above 50 degrees Fahrenheit during application and the curing period.

(4) Control of adverse environmental conditions. - When ambient conditions are not consistent with environmental requirements, the Contractor shall control the environment by either or a combination of heaters and dehumidification equipment.

(5) Recoating times at a reference temperature. - Coated surfaces that are to receive subsequent coats shall be recoated within a time frame window and temperatures recommended by the manufacturer. Where the recoat limit has been exceeded, the Contractor shall follow surface preparation methods for the coated surface in accordance with the manufacturer's instructions.

(6) Heating of cold-applied coatings. - Heating of cold-applied coatings will be permitted to improve application properties. Heating shall be by hot-water bath or other OSHA-approved methods.

(7) Spray application. - All air supply lines of spray equipment shall be free from oil and moisture. Spray equipment shall be equipped with tips, nozzles, pressure gauges, and pressure regulators. Nozzle pressure shall be consistent to produce an atomized spray to form a continuous and uniform coating film. Spray equipment for zinc filled materials shall be equipped with mechanical agitators, except that mechanical agitators shall not be used for moisture cured zinc filled materials. During spray application, the nozzle shall be held sufficiently close to the surfaces being coated to produce a continuous wet coat, avoid excessive evaporation of the volatile constituents, loss of material into the air, and bridging over crevices and corners.

(8) Coating application. - Each coat shall be applied to produce an even film of uniform thickness which will completely cover irregularities, fill crevices, and be tightly bonded to the substrate or previous coat. Each coat shall be free from runs, pinholes, sags, laps, brush marks, voids, and other defects. Each coat shall be allowed to dry or to harden before the succeeding coat is applied. Materials shall be applied in accordance with the manufacturer's recommendations.

(a) Primer coats. - Primer coats shall cover the peaks of the surface profile by the specified dry film thickness (DFT) listed in tabulations. Primer coated shall be applied the same day surface preparation is completed. Unless otherwise specified, primer coats shall be applied as follows:

(aa) Stripe coats. - The first primer coat shall be a stripe or an edge coat applied to edges, boltheads, welds, corners, and similar surfaces by brushing to thoroughly and effectively coat these areas. The coating material may be delivered to the surface by spraying and then "scrubbed in" by brushing.

(bb) General primer coats. - After the edge coat has been applied, primer coats shall be applied by brush, roller, or spray equipment to all surfaces, including edge coated surfaces, to achieve a smooth, uniform coating.

(b) Intermediate coats and topcoats. - Intermediate and topcoats shall be applied in accordance to the applicable tabulation number for number of coats and thickness. Application shall be within the recoat window specified by the manufacturer.

The coating color for intermediate and topcoats, not listed in the color schedule, shall be tinted by the manufacturer to differentiate between coats to aid the coating applicator in the uniformity, thickness, and complete application of the material.

g. Testing. - The hardened coating shall be tested for acceptance by the applicable standards listed below for the following coating system exposure:

(1) All coating exposures (atmospheric, burial, and partial or full immersion). - The dry film thickness (DFT) shall be measured on hardened completed coating systems, but before the recoating interval has been exceeded, on steel surfaces in accordance with SSPC-PA2; except that, the requirements of section 5.2.1, for the minimum thickness shall be 90 percent of the specified minimum thickness and section 5.2.2, for the maximum thickness shall be 150 percent of the specified maximum thickness.

No single spot measurement in any 100 square foot area shall be less than 90 percent of the minimum specified thickness and greater than 150 percent of the maximum specified thickness for DFT acceptance.

(2) Burial and partial or full immersion exposure. - Nonconductive coating applied to conductive base metals shall be tested for pinholes and holidays in accordance to NACE RP 0188. Coating systems with zinc primers or micaceous iron oxides (MIO) shall be tested at low voltage and increased to a non-damaging maximum test voltage. The use of detergent wetting solution is not permitted.

The Contractor shall consult with the manufacturer to determine maximum voltage for the applied coating for testing and prevent coating damage. The Contractor shall notify the Contracting Officer's representative 72 hours in advance of holiday testing such that the Contracting Officer's representative may witness the holiday testing.

h. Repair of construction related defects. - Damaged areas, pinholes, holidays, laps, voids, or other defects shall be repaired within the minimum and maximum recoat window times in accordance with the coating manufacturer's recommendations and the applicable tabulation that the coating was applied. Repaired areas shall be retested. The cost of furnishing all materials and performing all work required in repairs of defective coatings shall be the responsibility of the Contractor.

i. Cost. - The cost of furnishing, preparing, and applying materials for cleaning, coating repair, or coating operations; shall be included in the applicable prices bid in the schedule for furnishing and installing or for constructing the items to be coated.

## C.7.2 COATING TABULATIONS AND CATEGORIES

a. General. - Contractor furnished items shall be surface prepared and coated in accordance with the tabulations.

b. Coating tabulations. - The tabulation specifies the items to be coated, the substrate surface, the coating or coating material options by an alphanumeric label, Federal or Military specification number, or "Brand" name, the number and thickness of coats to be applied, the surface preparation method, and the surface profile if different from general conditions. Within some coating options, there may be more than one coating category listed. The Contractor shall apply only one coating category per option. Individual system coats shall be compatible with the other applied coats, either primer, intermediate, or topcoat.

c. Coating categories. - Specific coating categories referenced in the coating tabulations identify product name and manufacturer or Federal or Military specification and list the generic chemical composition, physical characteristics, and performance requirements.

Tabulation No. 01. -

The ferrous surfaces* of items listed below shall be coated in accordance with the requirements of this tabulation.

Items to be coated:

a. Interior surfaces of water passage pipe, inlet pipe up to spiral case.

b. Interior surfaces of pressure regulating valve and carbon steel surfaces of the energy dissipaters.

| Coating materials Option 1 | Number and thickness of coats | Surface preparation method |
|---|---|---|
| Category Options: IE-1A1<br>IE-1C<br>IE-1J<br><br>Colors and glosses: Manufacturer's standard light gray or off-white. | 2 or more coats, plus stripe coats.<br><br>8-mil DFT, minimum, per coat.<br><br>16 mils DFT, minimum, for total system, plus stripe coats. | C<br><br>Follow the Manufacturer's specific application instructions and/or specifications for surface preparation before applying next coat. |
| **Coating materials Option 2** | **Number and thickness of coats** | **Surface preparation method** |
| Category: IES-7ACE | 1 or more prime coats, to produce a DFT between 2.5 to 3.5 mils per coat, plus stripe coats. | C |
| | 1 or more intermediate coats, to produce a minimum DFT between 5 to 7 mils per coat. | Follow the Manufacturer's specific application instructions and/or specifications for surface preparation before applying next coat. |
| Colors and glosses: Manufacturer's standard black. | 1 or more topcoats, to produce a minimum DFT between 5 to 7 mils per coat.<br><br>12.5-mil DFT, minimum, for total system, excluding stripe coats. | |

* Stainless steel items shall not be coated, unless specifically listed elsewhere in these tabulations, or otherwise specified.

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Tabulation No. 21. -

The metal items* listed below shall be coated in accordance with the requirements of this tabulation.

Items to be coated:

a. Exterior surfaces of pressure regulating valve, operating links, and arms.

| Coating materials<br>Option 1 | Number and thickness of coats | Surface preparation method |
|---|---|---|
| Base coat:<br><br>Category: IE-1A1<br>IE-1C<br>IE-1J | 2 or more coats, plus edge coats.<br><br>8-mil DFT, minimum, per coat.<br><br>16-mil DFT, minimum, for total system, plus edge coats. | C |
| **Coating materials<br>Option 2** | **Number and thickness of coats** | **Surface preparation method** |
| Base coats:<br><br>Category: IE-1A1<br>IE-1C<br>IE-1J | 2 or more coats<br><br>7-mil DFT, minimum, per coat<br><br>14-mil DFT, minimum, plus edge coats | C |
| Finish coat(s):<br><br>Category: IE-1AT over IE-1A1<br>IE-1CT over IE-1C<br>IE-1DT over IE1J<br><br>Match the compatible category "T" aliphatic polyurethane to the base coat used.<br><br>(Colors and glosses as shown in the color schedule.) | 1 or more coats of compatible "T" aliphatic polyurethane<br><br>3 to 4 mils DFT, minimum, for finish coat, per coat<br><br>17-mil DFT, minimum, for total system, excluding edge coats | Follow the Manufacturer's specific application instructions and/or specifications for surface preparation before applying next coat. |

Tabulation No. 21. -

| Coating materials<br>Option 3 | Number and thickness of coats | Surface preparation method |
|---|---|---|
| Category: IES-7A<br><br>(Colors and glosses as shown in the color schedule.) | 1 prime coat, to produce a DFT between 3 to 4 mils per coat, plus edge coats | C |
| | 1 or more intermediate coats, to produce a minimum DFT of 3 mils per coat. | Follow the Manufacturer's specific application instructions and/or specifications for surface preparation before applying next coat. |
| | 1 or more topcoats, to produce a DFT of 3 mils per coat<br><br>9-mil DFT, minimum, for total system, excluding edge coats | |

* Stainless steel items shall not be coated, unless specifically listed elsewhere in these tabulations, or otherwise specified.

T-TAB21F.898

Tabulation No. 41. -

The stainless steel items listed below shall not be coated but shall have all surfaces uniformly passivated at point of manufacture. Damaged, contaminated, or depassivated surfaces of stainless steel shall be cleaned and the uniform passivation layer restored as listed by specifications Surface Preparation Method G and ASTM A 380.

Items to receive a uniform passivation layer:

a. Stainless steel welded overlay energy dissipators.

| Coating materials | Number and thickness of coats | Surface preparation method |
|---|---|---|
| Do not coat unless specifically listed elsewhere in these tabulations. | | G |

Repassivation Repair Methods and Inspection Procedures of Contaminated Stainless Steel Surfaces

| Degree of surface contamination | ASTM A 380* Surface preparation method** | ASTM A 380 Surface inspection procedure** |
|---|---|---|
| Locally heavy surface contaminated areas:<br><br>Contaminated by free iron, oxide scale, or rust related contaminates caused by field welding or cutting. | Method 5. - "Descaling", General<br><br>Method 5.3 - "Mechanical Descaling" by grinding<br>and/or<br>Method 6.3 - "Cleaning of Welds and Weld-Joint Areas" | Method 7.2 - "Gross Inspection"<br><br>Methods 7.2.5 - "Tests for Free Iron: Gross Indications" |
| General surface contaminated areas:<br><br>Contaminated by free iron, oxide scale, or rust related contaminates. | Method 5. - "Descaling," General<br><br>Method 5.2 - "Chemical Descaling"<br><br>Method 5.2.2.(1) - "Chemical Descaling" by swab or spray wetting the surfaces<br>and/or<br>Method 5.3 - "Mechanical Descaling" by grinding | Method 7.2 - "Gross Inspection"<br>Method 7.2.5 - "Tests for Free Iron: Gross Indications" |

| Tabulation No. 41. - | | |
|---|---|---|
| General surface contaminated areas:<br><br>Contaminated by grease, oil, residual chemical films, or other non-free iron related contaminates. | Method 6.2.10 - "Water Jetting"<br>and/or<br>Method 6.4 - "Final Cleaning, or Passivation, or Both." wiping with a clean, solvent-moistened cloth | Method 7.2 - "Gross Inspection"<br><br>Method 7.2.2 - "Wipe Tests"<br><br>Where films are not detectable under white light conditions, use<br><br>Method 7.3 - "Precision Inspection"<br><br>Method 7.3.2 - "Black Light Inspection"*** |

* In general, the field passivation**** of contaminated surfaces shall be in accordance with ASTM A 380, Method 6.4 and Note 3. However, if the precautions found in Section 6.1 "Cleaning General" and Section 8.1 "Minimizing Iron Contaminations" are not followed, the contaminated field surfaces shall be repassivated by Table A2.1 Part II - "Cleaning-Passivation with Nitric Acid Solution" and Method 6.2.11 - "Acid Cleaning".

** The specified surface preparation and surface inspection procedure methods listed are herein for the given "Degree of surface contamination". Other ASTM A 380 methods may also be utilized as required.

*** Inspection shall be preformed with proper lighting, more specifically under white light blacked-out conditions.

**** The field cleaning and passivation method used shall not damage attached parts, adjacent parts, or materials in which stainless steel parts are embedded.

T-TAB41F.898

Category IE-1A1

Category IE-1A1 coating system shall be:

Amerlock 400/400 cure; as manufactured by:

Ameron
PO Box 1020
Brea CA 92622-1020
(714) 529-1951

or equal, having the following salient characteristics:

COMPOSITION:

Self-priming, two-component, polyamide epoxy coating

PHYSICAL CHARACTERISTICS:

| | |
|---|---|
| Volume solids: | 80 percent, minimum |
| VOC (as supplied): | 1.4 pounds per gallon (168 grams per liter), maximum |
| Minimum curing temperature: | 50 degrees F |
| Surface application temperature above dew point: | 5 degrees F, minimum |
| Mixed usable pot life at 70 degrees F: | 2.5 hours, minimum |
| Maximum applied DFT per coat: | 8 mils |
| Curing time at 70 degrees F: | Touch - 9 hours; Through - 20 hours |
| Recoating time at 70 degrees F: | 16 hours, minimum; 2 months, maximum; after 2 months abrade surfaces |
| Mixing ratio: | 1 to 1, by volume |
| Application method: | Brush, roller, conventional, or airless spray |
| Time before immersion after the final coat has been applied at 70 degrees F: | 7 days, minimum |

COATING SYSTEM PERFORMANCE REQUIREMENTS:

| | |
|---|---|
| Fresh/Deionized water immersion test: (ASTM D 870) | passes 3,000 hour test with aerated water held at ambient temperatures with no blisters evident on either the scribed or unscribed sides. |
| Salt water immersion test: (ASTM D 870, ASTM D 1141 formula A with no heavy metals) | passes 3,000 hour test with aerated water held at ambient temperatures with no blisters evident on either the scribed or unscribed sides. |
| Flexibility: (ASTM D 522, 180 degree bend over 1-inch mandrel) | passes |
| Pencil hardness: (ASTM D 3363) | 2B, minimum |
| Pulloff Adhesion: (ASTM D 4541) (Elcometer) | greater than 500 psi |
| Tape adhesion: (ASTM D 3359) | equal to or better than 4A |

C-IE-1A1.898

Category IE-1C

Category IE-1C coating system shall be:

Tnemec, Series 69, Hi-Build Epoxoline II; as manufactured by:

Tnemec Company, Inc.
PO Box 411749
Kansas City MO 64141
(816) 483-3400

or equal, having the following salient characteristics:

COMPOSITION:

Self-priming, two-component, polyamidoamine epoxy

PHYSICAL CHARACTERISTICS:

| | |
|---|---|
| Volume solids: | 67 percent, minimum |
| VOC (as supplied): | 2.29 pounds per gallon (275 grams per liter), maximum |
| Minimum curing temperature: | 50 degrees F |
| Surface application temperature above dew point: | 5 degrees F, minimum |
| Mixed usable pot life at 77 degrees F: | 4 hours, minimum |
| Maximum applied DFT per coat: | 5 mils |
| Curing time at 75 degrees F: | Touch - 2 hours; Handle - 6 hours |
| Recoating time at 75 degrees F: | 8 hours, minimum; 14 days, maximum; after 14 days abrade surfaces |
| Mixing ratio: | 1 to 1, by volume |
| Application method: | Brush or roller (small areas only); conventional, or airless spray |
| Time before immersion after the final coat has been applied at 70 degrees F: | 7 days, minimum |

COATING SYSTEM PERFORMANCE REQUIREMENTS:

| | |
|---|---|
| Fresh/Deionized water immersion test: (ASTM D 870) | passes 3,000 hour test with aerated water held at ambient temperatures with no blisters evident on either the scribed or unscribed sides. |
| Salt water immersion test: (ASTM D 870, ASTM D 1141 formula A with no heavy metals) | passes 3,000 hour test with aerated water held at ambient temperatures with no blisters evident on either the scribed or unscribed sides. |
| Flexibility: (ASTM D 522, 180 degree bend over 1-inch mandrel) | passes |
| Pencil hardness: (ASTM D 3363) | 2B, minimum |
| Pulloff Adhesion: (ASTM D 4541) (Elcometer) | greater than 500 psi |
| Tape adhesion: (ASTM D 3359) | equal to or better than 4A |

C-IE-1C.898

Category IE-1J

Category IE-1J coating system shall be:

Bar-Rust 235, Multi-Purpose Epoxy; as manufactured by:

ICI Devoe Coatings
4000 Dupont Circle
Louisville KY 40207
(502) 897-9861

or equal, having the following salient characteristics:

COMPOSITION:

Self-priming, two-component, modified polyamide amine epoxy

PHYSICAL CHARACTERISTICS:

| | |
|---|---|
| Volume solids: | 68 percent, minimum |
| VOC (as supplied): | 2.4 pounds per gallon (292 grams per liter), maximum |
| Minimum curing temperature: | 40 degrees F |
| Surface application temperature above dew point: | 5 degrees F, minimum |
| Mixed usable pot life at 77 degrees F and 50 percent relative humidity: | 3.5 hours, minimum |
| Maximum applied DFT per coat: | 8 mils |
| Recoating time at 77 degrees F and 50 percent relative humidity: | 5 hours, minimum; 1 month, maximum |
| Mixing ratio: | 4 to 1, by volume |
| Application method: | Brush or roller (small areas only); conventional or heavy-duty airless spray (preferred) |
| Time before immersion after the final coat has been applied at 70 degrees F: | 7 days, minimum |

COATING SYSTEM PERFORMANCE REQUIREMENTS:

| | |
|---|---|
| Fresh/Deionized water immersion test: (ASTM D 870) | passes 3,000 hour test with aerated water held at ambient temperatures with no blisters evident on either the scribed or unscribed sides. |
| Salt water immersion test: (ASTM D 870, ASTM D 1141 formula A with no heavy metals) | passes 3,000 hour test with aerated water held at ambient temperatures with no blisters evident on either the scribed or unscribed sides. |
| Flexibility: (ASTM D 522, 180 degree bend over 1-inch mandrel) | passes |
| Pencil hardness: (ASTM D 3363) | 3H, minimum |
| Pulloff Adhesion: (ASTM D 4541) (Elcometer) | greater than 500 psi |
| Tape adhesion: (ASTM D 3359) | equal to or better than 4A |

Category IE-1DT is the weathering topcoat for this epoxy system, if one is specified.

C-IE-1J.898

Category IES-7ACE

Category IES-7ACE coating system shall be MC-Zinc, primer; MC-Tar, intermediate coat; MC-Tar, topcoat; as manufactured by:

Wasser High-Tech Coatings
8401 S. 228th, Building. 103
Kent WA 98032
(206) 850-2967, or equal,

or equal, having the following salient characteristics:

COMPOSITION:

Primer - Aromatic, single-component, moisture-cure, urethane - zinc pigmented

Intermediate coat and topcoat - Aromatic, single-component, moisture-cure, urethane, pigmented portion shall contain refined coal tar and micaceous iron oxide (MIO)*

Lead and chromate free

PHYSICAL CHARACTERISTICS, PRIMER:

| | |
|---|---|
| Volume solids: | 60 percent, minimum |
| Weight Solids: | 87 percent, minimum |
| Weight per gallon | 23.7 pounds per gallon, minimum |
| Pigment type: | 83 percent, minimum zinc dust in dry film, yielding a minimum of 0.050 lbs/ft$^2$ zinc by weight in dry film (at 3 mil DFT) |
| VOC (as supplied): | 2.8 pounds per gallon (335 grams per liter), maximum |
| Minimum application temperature: | 50 °F |
| Maximum applied DFT per coat: | 3.5 mils |
| Recoating time at 50 °F and 60 to 90 percent relative humidity: | 6 hours, minimum (no maximum) |
| Curing time at 75 °F; applied DFT of 3 mils: | Touch - 20 min: Handle - 8 hrs: Recoat - 4 hrs |
| Application method: | Brush, roller, conventional or airless spray |

PHYSICAL CHARACTERISTICS, INTERMEDIATE COAT and TOPCOAT:

| | |
|---|---|
| Volume solids: | 60 percent, minimum |
| Weight Solids: | 78 percent, minimum |
| Weight per gallon | 13 pounds per gallon, minimum |
| Pigment type: | 4 lb/gal, minimum MIO*, yielding a minimum of solids at 0.018 lbs/ft$^2$ MIO by weight in dry film (at 6 mil DFT) |
| VOC (as supplied): | 2.8 pounds per gallon (335 grams per liter), maximum |
| Minimum application temperature: | 50 °F |
| Maximum applied DFT per coat: | 7 mils |
| Recoating time at 50 °F and 60 to 90 percent relative humidity: | 8 hours, minimum (no maximum) |
| Curing time at 75 °F; applied DFT of 6 mils: | Touch - 30 min: Handle - 24 hrs: Recoat - 4 hrs |

Category IES-7ACE

| | |
|---|---|
| Application method: | Brush, roller, conventional, or airless spray |
| Time before immersion after final coat has been applied at 40 to 90 °F and greater than 30 percent relative humidity: | 8 hours, minimum |

* Note: All MIO products shall conform to ASTM D5532, Type 1, at 80 percent minimum lamellarity, 85 percent minimum $Fe_2O_3$ content, with the non-MIO crystalline content comprised of quartz, mica, feldspaths, barytine, and shall be free of sulfates, carbonates and chlorine with soluable salts below 0.04 percent, and have Certificate of Conformance from MIO source with current batch numbers and dates.

COATING SYSTEM PERFORMANCE REQUIREMENTS:

| | |
|---|---|
| Fresh/Deionized water immersion test: (ASTM D 870) | passes 3,000 hour test with aerated water held at ambient temperatures with no blisters evident on either the scribed or unscribed sides. |
| Salt water immersion test: (ASTM D 870, ASTM D 1141 formula A with no heavy metals) | passes 3,000 hour test with aerated water held at ambient temperatures with no blisters evident on either the scribed or unscribed sides. |
| Direct impact resistance: (ASTM D 2794) | greater than 150 inch pounds |
| Abrasion Resistance: (ASTM D 4060, CS-17 Wheel with 1 kg load, 1000 cycles) | less than 90 mg loss |
| Flexibility: (ASTM D 522, 180° bend over ½-inch mandrel) | passes |
| Pencil hardness: (ASTM D 3363) | 2B, minimum |
| Pulloff Adhesion: (ASTM D 4541) w/(Elcometer) | greater than 500 psi |
| Tape adhesion: (ASTM D 3359-93) | equal to or better than 4A |

CIES7ACE.N97

SUBSECTION 8 - DRAWINGS

C.8.1. DRAWINGS, GENERAL

a. General.--Specifications and details shown on drawings which are not applicable under these specifications shall be disregarded. In the event there are minor differences as determined by the Contracting Officer between details and dimensions shown on the drawings and those of existing features at the site, the details and dimensions of existing features at the site shall govern.

b. Additional or revised drawings.--Except as otherwise provided in these specifications for drawings to be furnished by the Contractor, the specifications drawings will be supplemented by such additional or revised general and detail drawings as may be necessary or desirable as the work progresses; and the Contractor shall do no work without proper drawings and instructions. The additional or revised general and detail drawings furnished by the Government will show dimensions and details necessary for construction purposes more completely than are shown on the specifications drawings for all features of the work and for equipment and other metalwork not yet purchased. The Contractor will be required to perform the work in accordance with the additional general and detail drawings or revisions furnished by the Government at the applicable prices bid in the schedule for such work.

c. Additional copies of drawings.--The Contractor will be furnished such additional copies of the specifications and drawings as may be required for carrying out the work. Full-size contact prints of the original drawings from which the attached reproductions were made will be furnished to the Contractor for construction purposes upon request. The number of prints of each drawing furnished to the Contractor will be limited to 2 contact prints and 1 reproducible.

d. Mailing address.--All drawings and data submitted by the Contractor for which a specific mailing address is not given in these specifications shall be submitted to the Bureau of Reclamation, Regional Engineer, Lower Colorado Regional Office, P. O. Box 61470, Boulder City, Nevada 89006-1470

C.8.2. LIST OF DRAWINGS

The following drawings, located in Volume 2, are made a part of these specifications.

UNIT A4 PRV REHABILITATION
HOOVER POWERPLANT
LOWER COLORADO DAMS PROJECT, ARIZONA

| | | |
|---|---|---|
| 1. | 45-D-16306 | Location Map |
| 2. | 45-D-5485 | Cross Section of Powerhouse |
| 3. | 45-D-19577 | Schematic Operation of AC PRV |
| 4. | 45-D-19578 | Control Valve Tip and Seal |
| 5. | 45-301-6620 | Generator Unit Typical Cross Section |
| | | Hoover A4 Pressure Regulator Valve<br>Allis-Chalmers Drawings |
| 6. | 42A | Pressure Regulator Valve Diagram |
| 7. | 42B | PRV Control Valve Diagram |
| 8 | 02-100-968 r1 | Pin (Crosshead) |
| 9. | 02-101-095 r2 | 6" Special Pipe (Control Valve) |
| 10. | 02-101-100 r1 | Specification for Position Indicator Column |
| 11. | 02-200-768 r1 | Sleeve for Cross Head |
| 12. | 02-200-816 r1 | Control Valve Tip Seat |
| 13. | 02-200-817 r1 | Valve Seat for Control Valve |
| 14. | 02-200-831 r1 | Bushing for Control Valve (13.5 inch piston sliding guide) |
| 15. | 02-200-832 r1 | Stuffing Box for Control Valve |
| 16. | 02-200-833 r1 | Lantern Ring for Control Valve (Control Valve outlet passageway) |
| 17. | 02-200-834 r1 | Bushing for Control Valve (Upper valve body, fixed) |
| 18. | 02-200-835 r1 | Baffle Ring for control Valve (Lower valve body, fixed) |
| 19. | 02-200-836 r1 | Locking Ring for Control Valve ( over lantern ring) |
| 20. | 02-200-837 r1 | Facing Ring for Control Valve (over lantern ring and locking ring) |
| 21. | 02-200-873 r1 | Special Elbow For Press Reg ( Control Valve Inlet) |
| 22. | 02-200-972 r1 | 4' x 6" Special Pipe (Auxiliary Chamber feed pipe) |
| 23. | 02-201-031 r1 | Specification for Assembly Section (02-501-027) |
| 24. | 02-201-344 r1 | Bushing for Repair of Piston Extension |
| 25. | 02-300-652 r1 | 71" Diameter Cylinder ( Main piston cylinder, fixed) |
| 26. | 02-300-661 r1 | Base Plate for Cross Head Guide |
| 27. | 02-300-662 r1 | Cross Head Guide |
| 28. | 02-300-663 r1 | Connecting Rod ( PRV to Turbine operating ring) |
| 29. | 02-300-697 r1 | Specification |

| | | |
|---|---|---|
| 30 | 02-300-760 r1 | Specification for Indicator Column and details , 02-501-024 |
| 31. | 02-400-579 r1 | Cross Head |
| 32. | 02-400-690 r1 | Assembly of Position Indicator Column |
| 33. | 02-500-870 r2 | 84" Dia Valve Body |
| 34. | 02-500-871 r2 | Piston Guide |
| 35. | 02-500-888 r1 | Assembly of Cross Head Guide |
| 36. | 02-500-898 r2 | St Plate Energy Absorber |
| 37. | 02-500-903 r1 | Connecting Rod ( Adjustable link to slider) |
| 38. | 02-500-912 r1 | Arrangement of Levers for Pressure Regulator |
| 39. | 02-500-916 r2 | 13" Dia Control Valve |
| 40. | 02-500-917 r1 | Control Valve Body |
| 41. | 02-500-918 r1 | Piston and Valve Stem |
| 42. | 02-500-925 r1 | Dashpot Cylinder |
| 43. | 02-500-933 r3 | Inlet Pipe |
| 44. | 02-500-942 r1 | Control Valve Connection Details |
| 45. | 02-500-943 r1 | Control Valve Connection Details |
| 46. | 02-500-944 r4 | Assembly of Control Valve Connections |
| 47. | 02-501-023 r2 | Supply Pipes |
| 48 | 02-501-024 r1 | Indicator Column & details |
| 49. | 02-501-025 r1 | Arrangement of Pressure Regulator |
| 50 | 02-501-026 r1 | Plan View of Pressure Regulator |
| 51. | 02-501-027 r2 | Assembly Section of Pressure Regulator |
| 52. | 02-501-028 r2 | Grease piping |
| 53. | 02-816-279 r5 | Valve Disc and spindle |
| 54. | 02-816-280 r6 | Valve Seat Rings |
| 55. | 02-816-282 r7 | 71" Dia Piston Details |
| 56. | 02-816-283 r6 | Top Cover |
| 57. | 02-816-285 r3 | Adjustable Lever |
| 58. | 02-816-286 r3 | Double Lever |
| 59. | 02-816-287 r4 | Cross Head and Guide |
| 60. | 02-816-288 r8 | Dashpot Piston and details (Reclose valve details) |
| 61. | 02-816-289 r4 | Yoke and connecting rods |
| 62. | 02-816-290 r4 | Adjustable Lever Assembly and Details |
| 63. | 02-816-298 r5 | ST Plate Energy Absorber |
| 64. | 02-817-252 r4 | 7'0" Dia Inlet Pipe |
| 65. | 02-817-254 r5 | Steel Plate Fluted Diffuser |
| 66. | 02-817-255 r4 | Details of Steel Plate Fluted Diffuser |
| 67. | 02-817-259 r5 | Valve Covers |
| 68. | 02-842-314 r4 | Jaw Coupling and Details |
| 69. | 02-842-327 r3 | Details for Top Cover |
| 70. | 02-842-338 r2 | Adjusting Nut and Details |

| | | |
|---|---|---|
| 71. | 02-842-347 r3 | Platform and ladder |
| 72. | 02-842-364 r4 | Control Valve Discharge Pipe |
| 73. | 02-851-675 r3 | Check Valve ( in Dashpot piston) |

# SECTION D - PACKAGING AND MARKING

THERE ARE NO CLAUSES INCLUDED IN THIS SECTION

# SECTION E - INSPECTION AND ACCEPTANCE

E.1 52.252-2 Clauses Incorporated by Reference (Feb 1998)

This contract incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. Also, the full text of a clause may be accessed electronically at this address:
http://www.usbr.gov/aamsden/rar.html

52.246-12 Inspection of Construction (Aug 1996)

# SECTION F - DELIVERIES OR PERFORMANCE

F.1 52.252-2 Clauses Incorporated by Reference (Feb 1998)

This contract incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. Also, the full text of a clause may be accessed electronically at this address:
http://www.usbr.gov/aamsden/rar.html

52.211-13 TIME EXTENSION (Apr 1984)

F.2. 52.211-10 COMMENCEMENT, PROSECUTION AND COMPLETION OF WORK (APR 1984)

The contractor shall be required to (a) commence work under this contract within 15 calendar days after the date the contractor receives notice to proceed, (b) prosecute the work diligently, and (c) complete the entire work ready for use not later than March 4, 2001. The time stated for completion shall include final cleanup of the premises.

The contractor shall accomplish work based upon the following completion schedule:

**Part (1). - The Contractor shall finish disassembling the PRV and remove all disassembled components under paragraph C.6.5. from the powerplant no later than November 6, 2000.**

**Part (2). - The Contractor shall finish reassembly of the PRV, complete all work under paragraphs C.6.6. through C.6.12. and complete final cleanup no later than March 4, 2001.**

**Part (3) - After the Government completes reassembling the turbine, the Contractor shall perform all phases of testing the PRV under paragraph C.6.13. no later than April 16, 2001. The Contractor shall be notified in writing 2 weeks prior to the day that the Contractor shall perform all testing of the PRV.**

The completion dates stated in parts 1, 2, and 3 above are based on the assumption that the successful offeror will receive site availability as specified below.

The Government will issue written notification to the Contractor for site availability to begin the pre-shutdown activities, pre-shutdown measurements, readings and operation of the PRV, and disassembly of the PRV under paragraphs C.6.3. through C.6.5. on or before **October 2, 2000.** The Contractor will not be permitted to perform any onsite work until after the date of receipt of

the site availability letter. If site availability is delayed beyond October 2, 2000, the completion dates for parts 1, 2 and 3 of the work will be extended by the number of calendar days after this date that the Contractor receives the site availability letter.

F.3 52.211-12 LIQUIDATED DAMAGES -- CONSTRUCTION (APR 1984)

a. If the Contractor fails to complete the work within the time specified in the contract, or any extension, the Contractor shall pay to the Government as liquidated damages, the following amounts per day for each day of delay in the completion of the respective parts of work as subdivided in the clause entitled "Commencement, Prosecution, and Completion of Work."

Part (1). - $2,000

Part (2). - $2,000

The maximum total liability for liquidated damages for the delay shall not exceed $25,000.

b. If the Government terminates the Contractor's right to proceed, the resulting damage will consist of liquidated damages until such reasonable time as may be required for final completion of the work, together with any increased costs occasioned the Government in completing the work.

c. If the Government does not terminate the Contractor's right to proceed, the resulting damage will consist of liquidated damages until the work is completed or accepted.

# SECTION G - CONTRACT ADMINISTRATION DATA

G.1 WBR 1452.201-80 Authorities and Limitations--Bureau of Reclamation (Jul 1993)

(a) All work shall be performed under the authority exercised by the Contracting Officer who has been appointed in accordance with the requirements of the Department of the Interior Acquisition Regulation (DIAR) 1401.603 (48 CFR 1401.603).

(b) The Contracting Officer may designate other Government employees to act as authorized representatives in administering this contract in accordance with the requirements of DIAR 1401.670 (48 CFR 1401.670). Any designation shall be made to the authorized representative by an appointment memorandum signed by the Contracting Officer which contains the scope and limitations of authority delegated for purposes of administering this contract. A copy of the memorandum, and any revisions to it, shall be provided to the Contractor which shall acknowledge receipt.

(c) The Contractor shall, without unnecessary delay, comply with any written or oral direction of the Contracting Officer or authorized representative(s) acting within the scope and authority of their appointment memorandum. Such orders or direction include, but are not limited to, instructions, interpretations, approvals, or rejections associated with work under this contract including requirements for submission of technical data, shop drawings, samples, literature, plans, or other data required to be approved by the Government under this contract.

(d) (1) If the Contractor receives direction for work under this contract (including any written or oral orders it regards as a change order under the Changes clause of this contract) and it considers such direction to have been issued without proper authority (including instances where it believes delegated authority has been exceeded), it shall not proceed with the direction and shall notify the Contracting Officer within five (5) working days of receipt of the direction. On the basis of the most accurate information available to the Contractor, the notice shall state--

(i) The date, nature, and circumstances of the direction received;

(ii) The name, function, and activity of each Government individual and Contractor official or employee involved in or knowledgeable about such direction;

(iii) The identification of any documents and the substance of any oral communication involved in such direction;

(iv) The contract line items or other contract requirements that may be affected by the alleged direction including any suspected delays or disruption of performance; and

(v) Any other information considered pertinent.

(2) Unless otherwise provided in this contract, the Contractor assumes all costs, risks, liabilities, and consequences of performing any work it is directed to perform under this paragraph prior to receipt of the Contracting Officer's determination issued under paragraph (e) of this clause.

(e) The Contracting Officer shall promptly, after receipt of any notice made under paragraph (d) of this clause, respond to the notice in writing. The response shall --

(1) Confirm that the direction contained in the Contractor's notice was unauthorized and either authorize it by appropriate contract modification or countermand it;

(2) Deny that the direction contained in the Contractor's notice was outside the scope and limitations of the authority of the authorized representative who gave the direction and direct the Contractor to proceed immediately with the direction received or, when necessary, direct the mode of further performance; or

(3) In the event the information contained in the Contractor's notice is inadequate to make a decision under subparagraphs (e)(1) or (2) of this clause, advise the Contractor what additional information is required, and establish the date by which it should be furnished and the date thereafter by which the Government will respond.

(f) A failure of the parties to agree upon the nature of a direction, or upon the contract action to be taken with respect thereto, shall be subject to the provisions of the Disputes clause of this contract.

G.2 WBR 1452.232-903 Invoice Submission Requirements--Bureau of Reclamation--Lower Colorado Region (Nov 1996)

(a) The COR has been designated authority to approve invoices for progress payments under the contract. To ensure timely processing of progress payments under the contract, the designated billing office for such payments is: Bureau of Reclamation, Attention: Regional Engineer (LC-6000), P.O. Box 61470, Boulder City NV 89006-1470.

(b) Final payment under the contract will be approved by the Contracting Officer. The final invoice will be approved pursuant to the Prompt Payment clause in the contract after all contract settlement actions are complete. To ensure timely processing, the designated billing office for the final invoice is: Bureau of Reclamation, Attention: Contracting Officer (LC-3130), P.O. Box 61470, Boulder City NV 89006-1470.

G.3 WBR 1452.242-80 Postaward Conference--Bureau of Reclamation (Jul 1993)

(a) Prior to the Contractor starting work, a postaward conference (as described in FAR Subpart 42.5), will be convened by the contracting activity or contract administration office. The Contractor's Project Manager shall attend the conference. If the contract involves subcontractors, a representative of each major subcontractor is also required to attend.

(b) The conference will be held at Hoover Dam, Boulder City, Nevada.

(c) The Contracting Officer and the Contractor will agree to the date and time of the conference after award of the contract. In event of a conflict in schedules, the Contracting Officer shall establish the date for the conference.

(d) The Contractor shall include any associated costs for attendance at the conference in its offer.

G.4 WBR 1452.242-900 Government Administration Personnel–Bureau of Reclamation--Lower Colorado Region (Jul 1998)

The contracting office representative responsible for overall administration of this contract is:

| | | | |
|---|---|---|---|
| Name and Address: | Kenneth A. Miller, Contracting Officer (LC-3130)<br>Bureau of Reclamation, Lower Colorado Regional Office<br>P.O. Box 61470, Boulder City NV 89006-1470 | | |
| Phone No.: | (702) 293-8460 | Fax No.: | (702) 293-8499 |
| E-mail: | kmiller@lc.usbr.gov | | |

G.5 WBR 1452.242-901 Contractor's Administration Personnel--Bureau of Reclamation--Lower Colorado Region (Jul 1998)

The designated contractor official who will be in charge of overall administration of this contract is:

| | | | |
|---|---|---|---|
| Name: | | | |
| Title: | | | |
| Address: | | | |
| City/State/Zip: | | | |
| Telephone No.: | ( ) | FAX No.: | ( ) |
| E-mail: | | | |

G.6 WBR 1452.242-902 Contractor's Payment Personnel--Bureau of Reclamation--Lower Colorado Region (Nov 1996)

The designated Contractor official who may be contacted for bank account and/or payment information is:

| | | | |
|---|---|---|---|
| Name: | | | |
| Title: | | | |
| Address: | | | |
| City/State/Zip: | | | |
| Telephone No.: | ( ) | FAX No.: | ( ) |
| E-mail: | | | |

G.7 WBR 1452.243-80 Modification Proposals -- Bureau of Reclamation (Feb 2000) Alternate III (Jul 1998)

(a) In submitting any proposal for a modification under this contract (including any proposal for an equitable adjustment resulting from a change under the Changes clause of this contract), the Contractor shall:

(1) Comply with the contract time limits for submission of a proposal or as specified by the Contracting Officer;

(2) Apply the contract cost principles and procedures in Part 31 of the Federal Acquisition Regulation (FAR) in effect on the date of this contract;

(3) Furnish a breakdown of all costs estimated to complete the work required by the modification (i.e., cost of added work, incurred cost of deleted work already performed, estimated cost of deleted work not yet performed, and net cost of the modification) to include all costs associated with materials (identified by item and quantity), equipment (identified by item, quantity and whether contractor-owned or rented), categories of direct labor, bond and insurance premium adjustments, subcontracts, overhead and other indirect costs, profit/fee, and any other pricing information requested by the Contracting Officer, in sufficient detail to permit a detailed analysis of fair and reasonable price and comply with the requirements of the Equipment Ownership and Operating Expense clause of this contract;

(4) Furnish a written justification for any requested time extensions; and

(5) For any pricing adjustment expected to exceed $500,000 (considering both increases and decreases) --

(i) Submit cost and pricing data using the format specified in Table 15-2 of FAR 15.408 unless the Contracting Officer agrees that an exception applies under the circumstances set forth in FAR 15.403-1;

(ii) Certify in substantially the format prescribed in FAR 15.406-2 that to the best of its knowledge and belief, the data are accurate, complete and current as of the date of agreement on the negotiated price of the modification; and

(iii) Comply with the requirements of either the Subcontractor Cost or Pricing Data clause or the Subcontractor Cost or Pricing Data -- Modifications clause of this contract when the adjustment includes a subcontract modification involving a pricing adjustment expected to exceed $500,000.

(b) Under the Changes clause of this contract, failure of the Contractor to timely assert its right for an adjustment or to submit a proposal for an adjustment by the date specified in the clause (or another date specified by the Contracting Officer) may result in a unilateral adjustment of the contract by the Contracting Officer pursuant to the Changes clause of this contract.

# SECTION H - SPECIAL CONTRACT REQUIREMENTS

H.1 WBR 1452.209-82 Prohibition on Release of Information--Bureau of Reclamation (Jul 1997)

(a) The Contractor shall not disclose information pertaining to the services performed under this contract to anyone other than Government or other personnel authorized by the Contracting Officer. The Contractor agrees that it will protect any information obtained from other companies during the performance of this contract from unauthorized use or disclosure for as long as the information remains proprietary and shall refrain from using such information for any purpose other than that for which it was furnished.

(b) In the event that the Contractor intends to employ individuals other than its own staff or other firms in the performance of the contract, each individual or firm shall be required to furnish the same written certification.

(c) The contractor shall insert, in any subcontract which requires the performance of work similar to that being performed by the Contractor, terms which shall conform substantially to the language of this clause, including this paragraph (c).

H.2 52.211-6 Brand Name or Equal (Aug 1999) (Deviation)

(a) If an item in this solicitation is identified as “brand name or equal,” the purchase description reflects the characteristics and level of quality that will satisfy the Government's needs. The salient physical, functional, or performance characteristics that “equal” products must meet are specified in the solicitation.

(b) To be considered for award, offers of “equal” products, including “equal” products of the brand name manufacturer, must–

(1) Meet the salient physical, functional, or performance characteristic specified in this solicitation;

(2) Clearly identify the item by--

(i) Brand name, if any; and
(ii) Make or model number;

(3) Include descriptive literature such as illustrations, drawings, or a clear reference to previously furnished descriptive data or information available to the Contracting Officer; and

(4) Clearly describe any modifications the offeror plans to make in a product to make it conform to the solicitation requirements. Mark any descriptive material to clearly show the modifications.

(c) The Contracting Officer will evaluate "equal" products on the basis of information furnished by the offeror or identified in the offer and reasonably available to the Contracting Officer. The Contracting Officer is not responsible for locating or obtaining any information not identified in the offer.

(d) Unless the offeror clearly indicates in its offer that the product being offered is an "equal" product, the offeror shall provide the brand name product referenced in the solicitation.

(e) The information for an "equal" product required by paragraphs (b) and (c) to be submitted in the bid may be furnished after contract award for the products listed in the table below:

| BRAND NAME SPECIFIED | |
|---|---|
| Category 1E-1A1 Coating System -<br>Amerlock 400/400 Cure; as Manufactured By:<br><br>Ameron<br>P.O. Box 1020<br>Brea, CA 92622-1020<br>(714) 529-1951 | Category 1E-1C Coating System -<br>Tnemec, Series 69,<br>Hi-Build Epoxoline II; as Manufactured By:<br><br>Tnemec Company, Inc.<br>P. O. Box 411749<br>Kansas City, MO 64141<br>(816) 483-3400 |
| Category 1E-1J Coating System -<br>Bar-Rust 235, Multi-Purpose Epoxy; as Manufactured By:<br><br>ICI Devoe Coatings<br>4000 Dupont Circle<br>Louisville, KY 40207<br>(502) 897-9861 | Category 1ES-7ACE Coating System<br>MC-Zinc, primer; MC-Tar, intermediate coat;<br>MC-Tar, topcoat; as Manufactured By:<br><br>Wasser High-Tech Coatings<br>8401 S. 228th, Building, 103<br>Kent, WA 98032<br>(206) 850-2967 |

H.3 WBR 1452.223-81 Safety and Health--Bureau of Reclamation (Jul 1998) Alternate I (Jul 1998)

(a) The Contractor shall not require any laborer or mechanic employed in the performance of this contract (including subcontracts) to work under conditions which are unsanitary, hazardous, or dangerous to the employee's health or safety.

(b) In addition to the requirements of the Accident Prevention clause of this contract, the Contractor shall comply with the Bureau of Reclamation "Reclamation Safety and Health Standards" (RSHS) manual.

(c) (1) The safety and health standards as referenced in subparagraph (b)(2) of the Accident Prevention clause may be obtained from any regional or area office of the Occupational Safety and Health Administration, U.S. Department of Labor.

(2) The Contractor may order the RSHS manual as referenced in subparagraph (b) above from: The Government Printing Office, Superintendent of Documents, North Capitol and H St. N.W., MS-SSMC - Room 566, Washington, D.C. 20401 (Stock item GPO-024-003-00178-3). The Contractor may also download the electronic version of the RSHS manual at no charge from the Lower Colorado Region’s web site at: http://www.lc.usbr.gov/~g3100/rshs.pdf.

(d) The Contractor shall submit a written proposed safety program in the form and time intervals prescribed in section 2 of the RSHS manual and amendments or revisions thereto in effect on the date of the solicitation.

(e) In addition to any other provisions in the contract, the Contractor shall comply with all safety and material data submittal requirements contained in the RSHS manual and revisions thereto.

(f) The Contractor shall maintain an accurate record of, and shall report to the Contracting Officer (or authorized representative) in the manner prescribed by the Contracting Officer, all cases of death, occupational diseases, or traumatic injury to employees or the public involved, and property damage in excess of $2,500 occurring during performance of work under this contract.

(g) The rights and remedies of the Government provided in this clause are in addition to any other rights and remedies provided by law or under this contract.

(h) In the event there is a conflict between the requirements contained in any of the safety documents referenced herein, the more stringent requirements shall prevail.

H.4 WBR 1452.223-900 Safety Data Submittal Requirements--Bureau of Reclamation--Lower Colorado Region (Nov 1996)

(a) Within 20 calendar days from the date it receives notice of award, the Contractor shall submit the following safety data to the Contracting Officer:

(1) The Contractor's current overall Experience Modification Rate (EMR) for Workers' Compensation Insurance applicable to the type of work to be performed under the contract (e.g., tunneling, concrete dams, canals) and to the State in which the work is to be performed. In any instance where the State establishes mandatory Workers' Compensation Insurance rates that are applicable to work to be performed under the contract within that State, those rates shall be submitted in lieu of the Contractor's current overall EMR;

(2) A copy of each Log and Summary of Occupational Injuries and Illnesses (Department of Labor Form OSHA-200), or its equivalent, completed by the Contractor during the 3 calendar years immediately preceding the calendar year in which it receives notice of award; and

(3) The Contractor's death and lost workday severity incidence rate for each of the 3 calendar years immediately preceding the calendar year in which it receives notice of award.

(b) The Contractor shall report any change in its overall EMR for Workers' Compensation Insurance (or to the mandatory State Workers' Compensation Insurance rates, where applicable) to the Contracting Officer within 15 calendar days from the date it receives notice of such change from its insurance carrier or the State Workers' Compensation Fund.

(c) The Contractor shall complete a Department of Labor Form OSHA-200, or its equivalent, for the calendar year in which it receives notice of award and each calendar year thereafter, and submit it to the Contracting Officer by February 15 of the following calendar year.

(d) The Contractor shall calculate its death and lost workday severity incidence rate for the calendar year in which it receives notice of award and each calendar year thereafter, and submit it to the Contracting Officer by February 15 of the following calendar year.

# PART II - CONTRACT CLAUSES

# SECTION I - CONTRACT CLAUSES

## I.1 52.252-2 Clauses Incorporated by Reference (Feb 1998)

This contract incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. Also, the full text of a clause may be accessed electronically via the Internet at this address: http://www.arnet.gov/far.

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| 52.202-1 | Definitions (Oct 1995) Alternate I (Apr 1984) |
| 52.203-3 | Gratuities (Apr 1984) |
| 52.203-5 | Covenant Against Contingent Fees (Apr 1984) |
| 52.203-7 | Anti-Kickback Procedures (Jul 1995) |
| 52.203-8 | Cancellation, Rescission, and Recovery of Funds for Illegal or Improper Activity (Jan 1997) |
| 52.203-10 | Price or Fee Adjustment for Illegal or Improper Activity (Jan 1997) |
| 52.203-12 | Limitation on Payments to Influence Certain Federal Transactions (Jun 1997) |
| 52.204-4 | Printing/Copying Double-Sided on Recycled Paper (Jun 1996) |
| 52.209-6 | Protecting the Government's Interest When Subcontracting with Contractors Debarred, Suspended, or Proposed for Debarment (Jul 1995) |
| 52.215-2 | Audit and Records--Negotiation (Jun 1999) |
| 52.215-8 | Order of Precedence-Uniform Contract Format (Oct 1997) |
| 52.215-21 | Requirements for Cost or Pricing Data or Information Other Than Cost or Pricing Data--Modifications (Oct 1997) Alternate IV (Oct 1997) |
| 52.219-4 | Notice of Price Evaluation Preference for HUBZone Small Business Concerns (Jan 1999) |
| 52.219-8 | Utilization of Small Business Concerns (Oct 1999) |
| 52.222-3 | Convict Labor (Aug 1996) |
| 52.222-4 | Contract Work Hours and Safety Standards Act--Overtime Compensation (Jul 1995) |
| 52.222-6 | Davis-Bacon Act (Feb 1995) |
| 52.222-7 | Withholding of Funds (Feb 1988) |
| 52.222-8 | Payrolls and Basic Records (Feb 1988) |
| 52.222-9 | Apprentices and Trainees (Feb 1988) |
| 52.222-10 | Compliance with Copeland Act Requirements (Feb 1988) |
| 52.222-11 | Subcontracts (Labor Standards) (Feb 1988) |
| 52.222-12 | Contract Termination-Debarment (Feb 1988) |

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|---|---|
| 52.222-13 | Compliance with Davis-Bacon and Related Act Regulations (Feb 1988) |
| 52.222-14 | Disputes Concerning Labor Standards (Feb 1988) |
| 52.222-15 | Certification of Eligibility (Feb 1988) |
| 52.222-21 | Prohibition of Segregated Facilities (Feb 1999) |
| 52.222-26 | Equal Opportunity (Feb 1999) |
| 52.222-27 | Affirmative Action Compliance Requirements for Construction (Feb 1999) |
| 52.222-35 | Affirmative Action for Disabled Veterans and Veterans of the Vietnam Era (Apr 1998) Alternate I (Apr 1984) |
| 52.222-36 | Affirmative Action for Workers with Disabilities (Jun 1998) |
| 52.222-37 | Employment Reports on Disabled Veterans and Veterans of the Vietnam Era (Jan 1999) |
| 52.223-3 | Hazardous Material Identification and Material Safety Data (Jan 1997) Alternate I (Jul 1995) |
| 52.223-5 | Pollution Prevention and Right-to-Know Information (Apr 1998) |
| 52.223-6 | Drug-Free Workplace (Jan 1997) |
| 52.223-14 | Toxic Chemical Release Reporting (Oct 1996) |
| 52.225-13 | Restrictions on Certain Foreign Purchases (Feb 2000) |
| 52.227-1 | Authorization and Consent (Jul 1995) |
| 52.227-4 | Patent Indemnity--Construction Contracts (Apr 1984) |
| 52.228-2 | Additional Bond Security (Oct 1997) |
| 52.228-5 | Insurance--Work on a Government Installation (Jan 1997) |
| 52.228-11 | Pledges of Assets (Feb 1992) |
| 52.228-12 | Prospective Subcontractor Requests for Bonds (Oct 1995) |
| 52.228-14 | Irrevocable Letter of Credit (Dec 1999) |
| 52.228-15 | Performance and Payment Bonds--Construction (Sep 1996) |
| 52.229-3 | Federal, State, and Local Taxes (Jan 1991) |
| 52.229-5 | Taxes--contracts Performed in U.S. Possessions or Puerto Rico (Apr 1984) |
| 52.232-5 | Payments under Fixed-Price Construction Contracts (May 1997) |
| 52.232-17 | Interest (June 1996) |
| 52.232-23 | Assignment of Claims (Jan 1986) |
| 52.232-27 | Prompt Payment for Construction Contracts (Jun 1997) |
| 52.232-34 | Payment by Electronic funds Transfer-Other Than Central Contractor Registration (May 1999) |
| 52.233-1 | Disputes (Dec 1998) Alternate I (Dec 1991) |
| 52.233-3 | Protest After Award (Aug 1996) |
| 52.236-2 | Differing Site Conditions (Apr 1984) |
| 52.236-3 | Site Investigation and Conditions Affecting the Work (Apr 1984) |
| 52.236-5 | Material and Workmanship (Apr 1984) |

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| 52.236-6 | Superintendence by the Contractor (Apr 1984) |
| 52.236-7 | Permits and Responsibilities (Nov 1991) |
| 52.236-9 | Protection of Existing Vegetation, Structures, Equipment, Utilities, and Improvements (Apr 1984) |
| 52.236-10 | Operations and Storage Areas (Apr 1984) |
| 52.236-11 | Use and Possession Prior to Completion (Apr 1984) |
| 52.236-12 | Cleaning Up (Apr 1984) |
| 52.236-13 | Accident Prevention (Nov 1991) |
| 52.236-15 | Schedules for Construction Contracts (Apr 1984) |
| 52.236-14 | Availability and Use of Utility Services (Apr 1984) |
| 52.236-17 | Layout of Work (Apr 1984) |
| 52.236-21 | Specifications and Drawings for Construction (Feb 1997) Alternate II (Apr 1984) |
| 52.236-26 | Preconstruction Conference (Feb 1995) |
| 52.242-13 | Bankruptcy (Jul 1995) |
| 52.242-14 | Suspension of Work (Apr 1984) |
| 52.244-6 | Subcontracts for Commercial Items and Commercial Components (Oct 1998) |
| 52.245-1 | Property Records (Apr 1984) |
| 52.245-2 | Government Property (Fixed-Price Contracts) (Dec 1989) |
| 52.243-4 | Changes (Aug 1987) |
| 52.244-2 | Subcontracts (Aug 1998) |
| 52.246-21 | Warranty of Construction (Mar 1994) |
| 52.248-3 | Value Engineering--Construction (Feb 2000) |
| 52.249-2 | Termination for Convenience of the Government (Fixed-Price) (Sep 1996) Alternate I (Sep 1996) |
| 52.249-10 | Default (Fixed-Price Construction) (Apr 1984) |
| 52.253-1 | Computer Generated Forms (Jan 1991) |
| 1452.223-80 | Asbestos-Free Warranty (Oct 1992) |
| 1452.232-81 | Payment for Mobilization and Preparatory Work (Alt 1) (May 2000) |

I.2 1452.203-70 Restriction on Endorsements--Department of the Interior (Jul 1996)

The Contractor shall not refer to contracts awarded by the Department of the Interior in commercial advertising, as defined in FAR 31.205-1, in a manner which states or implies that the product or service provided is approved or endorsed by the Government, or is considered by the Government to be superior to other products or services. This restriction is intended to avoid the appearance of preference by the Government toward any product or service. The Contractor may request the Contracting Officer to make a determination as to the propriety of promotional material.

I.3 1452.204-70 Release of Claims--Department of the Interior (Jul 1996)

After completion of work and prior to final payment, the Contractor shall furnish the Contracting Officer with a release of claims against the United States relating to this contract. The Release of Claims form (DI-137) shall be used for this purpose. The form provides for exception of specified claims from operation of the release.

I.4 WBR 1452.214-910 Order of Precedence - Drawings--Bureau of Reclamation--Lower Colorado Region (Nov 1996)

(a) For the purposes of Order of Precedence, any drawings included with this solicitation shall be considered to supplement the specifications regardless of where they may appear. Any inconsistency between the drawings and the specifications shall be resolved by giving precedence to the specifications.

(b) Anything shown on the drawings and not mentioned in the specifications or called for in the specifications and not shown on the drawings, shall be furnished the same as if it were called for or shown in both.

I.5 WBR 1452.223-82 Protecting Federal Employees and the Public from Exposure to Tobacco Smoke in the Federal Workplace--Bureau of Reclamation (Oct 1998)

(a) In performing work under this contract, the contractor shall comply with the requirements of Executive Order 13058, dated August 9, 1997, which prohibits the smoking of tobacco products in all interior space owned, rented, or leased by the executive branch of the Federal Government, and in any outdoor areas under executive branch control in front of air intake ducts.

(b) This restriction does not apply in designated smoking areas that are enclosed and exhausted directly to the outside and away from air intake ducts, and are maintained under negative pressure (with respect to surrounding spaces) sufficient to contain tobacco smoke within the designated area.

(c) Smoking may also be restricted at doorways and in courtyards under executive branch control in order to protect workers and visitors from environmental tobacco smoke.

I.6 52.225-9 Buy American Act--Balance of Payments Program--Construction Materials (Feb 2000)

(a) Definitions. As used in this clause--

"Component" means any article, material, or supply incorporated directly into construction materials.

"Construction material" means an article, material, or supply brought to the construction site by the Contractor or a subcontractor for incorporation into the building or work. The term also includes an item brought to the site preassembled from articles, materials, or supplies. However, emergency life safety systems, such as emergency lighting, fire alarm, and audio evacuation systems, that are discrete systems incorporated into a public building or work and that are produced as complete systems, are evaluated as a single and distinct construction material regardless of when or how the individual parts or components of those systems are delivered to the construction site. Materials purchased directly by the Government are supplies, not construction material.

"Cost of components" means–

(1) For components purchased by the Contractor, the acquisition cost, including transportation costs to the place of incorporation into the end product (whether or not such costs are paid to a domestic firm), and any applicable duty (whether or not a duty-free entry certificate is issued); or

(2) For components manufactured by the Contractor, all costs associated with the manufacture of the component, including transportation costs as described in paragraph (1) of this definition, plus allocable overhead costs, but excluding profit. Cost of components does not include any costs associated with the manufacture of the end product.

"Domestic construction material" means--

(1) An unmanufactured construction material mined or produced in the United States; or

(2) A construction material manufactured in the United States, if the cost of its components mined, produced, or manufactured in the United States exceeds 50 percent of the cost of all its components. Components of foreign origin of the same class or kind for which nonavailability determinations have been made are treated as domestic.

"Foreign construction material" means a construction material other than a domestic construction material.

"United States" means the 50 States and the District of Columbia, U.S. territories and possessions, Puerto Rico, the Northern Mariana Islands, and any other place subject to U.S. jurisdiction, but does not include leased bases.

(b) Domestic preference. (1) This clause implements the Buy American Act (41 U.S.C. 10a-10d) and the Balance of Payments Program by providing a preference for domestic construction material. The Contractor shall use only domestic construction material in performing this contract, except as provided in paragraphs (b)(2) and (b)(3) of this clause.

(2) This requirement does not apply to the construction material or components listed by the Government as follows: see paragraph I.7, clause 1452.225-70, Use of Foreign Construction Materials.

(3) The Contracting Officer may add other foreign construction material to the list in paragraph (b)(2) of this clause if the Government determines that--

(i) The cost of domestic construction material would be unreasonable. The cost of a particular domestic construction material subject to the requirements of the Buy American Act is unreasonable when the cost of such material exceeds the cost of foreign material by more than 6 percent. For determination of unreasonable cost under the Balance of Payments Program, the Contracting Officer will use a factor of 50 percent;

(ii) The application of the restriction of the Buy American Act or Balance of Payments Program to a particular construction material would be impracticable or inconsistent with the public interest; or

(iii) The construction material is not mined, produced, or manufactured in the United States in sufficient and reasonably available commercial quantities of a satisfactory quality.

(c) Request for determination of inapplicability of the Buy American Act or Balance of Payments Program.

(1) (i) Any Contractor request to use foreign construction material in accordance with paragraph (b)(3) of this clause shall include adequate information for Government evaluation of the request, including--

(A) A description of the foreign and domestic construction materials;

(B) Unit of measure;

(C) Quantity;

(D) Price;

(E) Time of delivery or availability;

(F) Location of the construction project;

(G) Name and address of the proposed supplier; and

(H) A detailed justification of the reason for use of foreign construction materials cited in accordance with paragraph (b)(3) of this clause.

(ii) A request based on unreasonable cost shall include a reasonable survey of the market and a completed price comparison table in the format in paragraph (d) of this clause.

(iii) The price of construction material shall include all delivery costs to the construction site and any applicable duty (whether or not a duty-free certificate may be issued).

(iv) Any Contractor request for a determination submitted after contract award shall explain why the Contractor could not reasonably foresee the need for such determination and could not have requested the determination before contract award. If the Contractor does not submit a satisfactory explanation, the Contracting Officer need not make a determination.

(2) If the Government determines after contract award that an exception to the Buy American Act or Balance of Payments Program applies and the Contracting Officer and the Contractor negotiate adequate consideration, the Contracting Officer will modify the contract to allow use of the foreign construction material. However, when the basis for the exception is the unreasonable price of a domestic construction material, adequate consideration is not less than the differential established in paragraph (b)(3)(i) of this clause.

(3) Unless the Government determines that an exception to the Buy American Act or Balance of Payments Program applies, use of foreign construction material is noncompliant with the Buy American Act or Balance of Payments Program.

(d) Data. To permit evaluation of requests under paragraph (c) of this clause based on unreasonable cost, the Contractor shall include the following information and any applicable supporting data based on the survey of suppliers:

| Foreign and Domestic Construction Materials Price Comparison | | | | |
|---|---|---|---|---|
| Construction material description | | Unit of measure | Quantity | Price (dollars)* |
| Item 1 | Foreign construction material | | | |
| | Domestic construction material | | | |

| | | | | |
|---|---|---|---|---|
| Item 2 | Foreign construction material | | | |
| | Domestic construction material | | | |
| * Include all delivery costs to the construction site and any applicable duty (whether or not a duty-free entry certificate is issued). | | | | |

*[List name, address, telephone number, and contact for suppliers surveyed. Attach copy of response; if oral, attach summary.] [Include other applicable supporting information.*]

## I.7 1452.225-70 Use of Foreign Construction Materials--Department of the Interior (Jul 1996)

(a) The Government has determined that the Buy American Act is not applicable to the following construction materials because they are not mined, produced, or manufactured in the U.S. in sufficient quantities of a satisfactory quality:

Acetylene, black
Agar, bulk
Anise
Antimony, as metal or oxide
Asbestos, amosite, chrysotile, and crocidolite
Bananas
Bauxite
Beef, corned, canned
Beef extract
Bephenium hydroxynapthoate
Bismuth
Books, trade, text, technical, or scientific; newspapers; pamphlets; magazines; periodicals; printed briefs and films; not printed in the United States and for which domestic editions are not available
Brazil nuts, unroasted
Cadmium, ores and flue dust
Calcium cyanamide
Capers
Cashew nuts
Castor beans and castor oil
Chalk, English
Chestnuts
Chicle
Chrome ore or chromite
Cinchona bark
Cobalt, in cathodes, rondelles, or other primary ore and metal forms
Cocoa beans
Coconut and coconut meat, unsweetened, in shredded, desiccated, or similarly prepared form
Coffee, raw or green bean
Colchicine alkaloid, raw
Copra
Cork, wood or bark and waste
Cover glass, microscope slide
Crane rail (85-pound per foot)
Cryolite, natural
Dammar gum
Diamonds, industrial, stones and abrasives
Emetine, bulk
Ergot, crude
Erythrityl tetranitrate
Fair linen, altar
Fibers of the following types: abaca, abace, agave, coir, flax, jute, jute burlaps, palmyra, and sisal
Goat and kidskins
Graphite, natural, crystalline, crucible grade
Hand file sets (Swiss pattern)
Handsewing needles
Hemp yarn
Hog bristles for brushes
Hyoscine, bulk
Ipecac, root
Iodine, crude
Kaurigum
Lac
Leather, sheepskin, hair type
Lavender oil
Manganese
Menthol, natural bulk
Mica
Microprocessor chips (brought onto a Government construction site as separate units for incorporation into building systems during construction or repair and alteration of real property)
Nickel, primary, in ingots, pigs, shots, cathodes, or similar forms; nickel oxide and nickel salts
Nitroguanidine (also known as picrite)
Nux vomica, crude
Oiticica oil
Olive oil
Olives (green), pitted or unpitted, or stuffed, in bulk
Opium, crude
Oranges, mandarin, canned
Petroleum, crude oil, unfinished oils, and finished products
Pine needle oil
Platinum and related group metals, refined, as sponge, powder, ingots, or cast bars
Pyrethrum flowers
Quartz crystals
Quebracho
Quinidine
Quinine
Rabbit fur felt
Radium salts, source and special nuclear materials

Rosettes
Rubber, crude and latex
Rutile
Santonin, crude
Secretin
Shellac
Silk, raw and unmanufactured
Spare and replacement parts for equipment of foreign manufacture, and for which domestic parts are not available
Spices and herbs, in bulk
Sugars, raw
Swords and scabbards
Talc, block, steatite
Tantalum
Tapioca flour and cassava
Tartar, crude; tartaric acid and cream of tartar in bulk
Tea in bulk
Thread, metallic (gold)
Thyme oil
Tin in bars, blocks, and pigs
Triprolidine hydrochloride
Tungsten
Vanilla beans
Venom, cobra
Wax, carnauba
Wire glass
Woods; logs, veneer, and lumber of the following species: Alaskan yellow cedar, angelique, balsa, ekki, greenheart, lignum vitae, mahogany, and teak Yarn, 50 Denier rayon

(b) Offers based on the use of foreign construction materials other than those listed in (a) above may be acceptable if the Government determines that U.S. construction material is not available, would be impracticable or constitute an unreasonable price. Please contact the Contracting Officer with questions or comments concerning non-availability or impracticability of U.S. material.

(c) (1) Offers based upon use of foreign construction material for cost savings will be considered reasonable if the cost of each foreign construction material, plus 6 percent, is less than the cost of comparable U.S. construction material. The Contracting Officer shall compute the cost of each foreign construction material to include all delivery costs to the construction site, and any applicable duty (whether or not a duty-free entry certificate is issued). This evaluation shall be made for each foreign construction material included in the offer but not listed in subparagraph (a) above in this clause.

(2) Any contractor cost savings from post award approval to substitute foreign construction material for U.S. construction material shall be passed on to the Government.

(d) (1) This offer is based on the use of foreign construction material not listed in (a) above. For each foreign item proposed the offeror shall furnish the following information for the foreign material offered: item description, supplier, unit of measure, quantity, unit price, duty (even if a duty free certificate is issued), delivery costs, and total price and shall also identify information on a U.S. item comparable to the foreign item including: supplier, unit of measure, quantity, unit price, delivery costs and total price.

(2) If the Government rejects the use of foreign construction material listed under paragraph (d)(1) above, the Government will evaluate the Contractor’s offer using the offeror's stated price for the comparable U.S. construction material, and the offeror shall be required to furnish such domestic construction material at the Contractor’s originally offered price. In preaward situations, an offer which does not state a price for a comparable U.S. construction material will be rejected by the Government. In postaward situations an offer proposing foreign

material which does not state the price for the comparable U.S. construction material will be rejected by the Government. The Contractor shall use comparable U.S. material for the project and any additional cost for the use of this U.S. material shall be absorbed by the Contractor.

I.8 1452.228-70 Liability Insurance--Department of the Interior (Jul 1996)

(a) The Contractor shall procure and maintain during the term of this contract and any extension thereof liability insurance in form satisfactory to the Contracting Officer by an insurance company which is acceptable to the Contracting Officer. The named insured parties under the policy shall be the Contractor and the United States of America. The amounts of the insurance shall be not less than as follows:

WORKERS' COMPENSATION AND EMPLOYER'S LIABILITY

$100,000

GENERAL LIABILITY

$500,000 per occurrence

AUTOMOBILE LIABILITY

$200,000 each person
$500,000 each occurrence
$ 20,000 property damage

(b) Each policy shall have a certificate evidencing the insurance coverage. The insurance company shall provide an endorsement to notify the Contracting Officer 30 days prior to the effective date of cancellation or termination of the policy or certificate; or modification of the policy or certificate which may adversely affect the interest of the Government in such insurance. The certificate shall identify the contract number, the name and address of the Contracting Officer, as well as the insured, the policy number and a brief description of contract services to be performed. The Contractor shall furnish the Contracting Officer with a copy of an acceptable insurance certificate prior to beginning the work.

I.9 WBR 1452.228-84 Certification of Representatives for Corporate Sureties--Bureau of Reclamation (Sep 1996)

(a) Each surety company bond, that purports to have been executed by an agent or attorney-in-fact for the corporate surety, shall --

(1) be accompanied by a power of attorney to the signatory agent or attorney-in-fact; and

(2) the power of attorney or attorney-in-fact shall have been executed by the corporate surety upon a date prior to the date of the execution of the bond; or

(3) be accompanied by a certification of the sureties to the effect that the power of attorney was in full force and effect upon the date of the bond.

I.10 WBR 1452.231-81 Equipment Ownership and Operating Expense--Bureau of Reclamation (Jul 1998)

(a) Definitions. "Acquisition cost," as used in this clause means, the Contractor's original purchase price (including sales tax less salvage value) of an item of equipment including any and all accessories and expendable components required for utilization the item of equipment. For used equipment which is reconditioned and recapitalized, "acquisition cost" shall mean the adjusted amount resulting from the recapitalized value of the equipment as determined from the Contractor's accounting records.

"Equipment," as used in this clause, means equipment in sound workable condition at the construction work site, either owned or controlled by the Contractor or its subcontractors at any tier, or obtained from a commercial rental source, and furnished for use under this contract.

"Ownership cost," as used in this clause, means allowances for construction equipment depreciation and cost of facilities capital.

"Operating cost," as used in this clause, means the cost of operating equipment such as operating crew labor, servicing labor and equipment, labor and parts for all repairs and maintenance, fuel, oil, grease, supplies, tire wear and repair.

(b) Policy. (1) Equitable adjustments made in the price of this contract pursuant to the Changes, Differing Site Condition, Suspension of Work, or other clause of the contract, may include allowable ownership and operating costs for equipment. In accordance with FAR 31.105(d), allowable ownership and operating costs for each piece of equipment, or groups of similar serial or series equipment, shall be determined using actual cost data when such data are available from the Contractor's accounting records. When actual costs cannot be so determined or when actual cost data for a specific element of operating cost do not contain costs for individual pieces or types of equipment, the procedures in paragraph (d) of this clause shall be used to determine allowable costs (provided, in the case of operating costs, that the costs are reconciled to the Contractor's total cost for that operating element). For fully depreciated equipment, the procedures in paragraph (e) of this clause shall be used to determine allowable costs.

(c) Required data. In any request made for an equitable adjustment, the Contractor shall furnish to the Contracting Officer --

(1) A complete description of each item of equipment (including all accessory equipment attached thereto) to be used in connection with the work to be performed listing the date of manufacture, date of acquisition, make, model, size, capacity, mounting, and type of power;

(2) Evidence of the acquisition cost of new or used equipment to be used including all available current and historical supporting cost data. If evidence of acquisition cost is not provided by the Contractor or if the data provided are unacceptable to the Contracting Officer, the Contracting Officer may determine the acquisition cost by other appropriate means.

(d) Use of the predetermined rate schedule.

(1) When the Contracting Officer determines that allowable ownership and operating costs cannot be determined from the Contractor's accounting records, the U.S. Army Corps of Engineers pamphlet entitled "Construction Equipment Ownership and Operating Expense Schedule" (Schedule) for the State in which the construction site is located shall be used to calculate ownership and operating rates. Copies of the Schedules can be obtained, free of charge, from the U.S. Army Corps of Engineers, Publications Depot, 2803 52nd Avenue, Hyattsville, MD 20781-1102.

(2) For the purpose of determination of the hourly rates to be applied under this contract, working conditions shall be considered average, unless otherwise determined by the Contracting Officer.

(3) Rates for equipment not listed in the Schedule shall be calculated using the formulas in the Schedule. Alternatively, the Contracting Officer may determine to use rates in the Schedule for equipment comparable to the unlisted equipment, including horsepower and auxiliary features.

(e) Fully depreciated equipment. No depreciation or rental cost shall be allowed on equipment fully depreciated by the Contractor or by any division, subsidiary, parent company, or affiliate under common control. However, a reasonable rate for using fully depreciated equipment may be allowed by the Contracting Officer. Unless otherwise determined by the Contracting Officer, such hourly rate shall not exceed a value computed by multiplying the depreciation rate for the equipment (as shown in the Schedule table entitled "Construction Equipment Ownership and Operating Expense") by the economic index for the year of equipment manufacture (as shown in the Schedule table entitled "Economic Indexes for Construction Equipment"), divided by the economic index correspondingly with the year the Schedule is published. The year used for the basis of the rates in the Schedule is indicated in the table entitled "Equipment Age Adjustment

Factors for Ownership Costs." Idle or standby time will not be paid for fully depreciated equipment.

(f) Idle or standby time. Equipment ownership costs for idle or standby time of equipment not fully depreciated shall be determined as follows:

(1) The allowable rate shall be made at 50 percent of the hourly rate for ownership costs if actual cost data are used. The maximum hours per week allowed shall not exceed 40 hours or the amount of hours regularly worked by the Contractor, whichever is less. No allowance shall be made for Saturdays, Sundays, or holidays, when work is not actually performed.

(2) If actual cost data cannot be determined, the rate shall be computed in accordance with the Schedule.

(3) No costs shall be allowed for time when the equipment would have been otherwise idle or was not in good operating condition.

(4) Periods of time less than 2 hours on which equipment is down for normal and regular ser-vicing and for minor field repair or field maintenance shall be considered by the Contractor to be operating time rather than idle or standby time and such periods shall not be deducted from use or operating time.

(5) No costs are allowable for fully depreciated equipment.

(g) Rental. Allowable costs for renting or leasing of equipment shall be determined in accordance with FAR 31.105(d)(2)(ii) and 31.205-36.

I.11 52.232-34 Payment by Electronic Funds Transfer—Other Than Central Contractor Registration (May 1999)

(a) *Method of payment*. (1) All payments by the Government under this contract shall be made by electronic funds transfer (EFT) except as provided in paragraph (a)(2) of this clause. As used in this clause, the term “EFT” refers to the funds transfer and may also include the payment information transfer.

(2) In the event the Government is unable to release one or more payments by EFT, the Contractor agrees to either—

(i) Accept payment by check or some other mutually agreeable method of payment; or

(ii) Request the Government to extend payment due dates until such time as the Government makes payment by EFT (but see paragraph (d) of this clause).

(b) *Mandatory submission of Contractor's EFT information*. (1) The Contractor is required to provide the Government with the information required to make payment by EFT (see paragraph (j) of this clause). The Contractor shall provide this information directly to the office designated in this contract to receive that information (hereafter: "designated office") prior to submitting the first payment invoice. If not otherwise specified in this contract, the payment office is the designated office for receipt of the Contractor's EFTinformation. If more than one designated office is named for the contract, the Contractor shall provide a separate notice to each office. In the event that the EFT information changes, the Contractor shall be responsible for providing the updated information to the designated office(s).

(2) If the Contractor provides EFT information applicable to multiple contracts, the Contractor shall specifically state the applicability of this EFT information in terms acceptable to the designated office. However, EFT information supplied to a designated office shall be applicable only to contracts that identify that designated office as the office to receive EFT information for that contract.

(c) *Mechanisms for EFT payment*. The Government may make payment by EFT through either the Automated Clearing House (ACH) network, subject to the rules of the National Automated Clearing House Association, or the Fedwire Transfer System. The rules governing Federal payments through the ACH are contained in 31 CFR part 210.

(d) *Suspension of payment*. (1) The Government is not required to make any payment under this contract until after receipt, by the designated office, of the correct EFT payment information from the Contractor. Until receipt of the correct EFT information, any invoice or contract financing request shall be deemed not to be a proper invoice for the purpose of prompt payment under this contract. The prompt payment terms of the contract regarding notice of an improper invoice and delays in accrual of interest penalties apply.

(2) If the EFT information changes after submission of correct EFT information, the Government shall begin using the changed EFT information no later than 30 days after its receipt by the designated office to the extent payment is made by EFT. However, the Contractor may request that no further payments be made until the updated EFT information is implemented by the payment office. If such suspension would result in a late payment under the prompt payment terms of this contract, the Contractor's request for suspension shall extend the due date for payment by the number of days of the suspension.

(e) *Liability for uncompleted or erroneous transfers*. (1) If an uncompleted or erroneous transfer occurs because the Government used the Contractor's EFT information incorrectly, the Government remains responsible for—

(i) Making a correct payment;
(ii) Paying any prompt payment penalty due; and
(iii) Recovering any erroneously directed funds.

(2) If an uncompleted or erroneous transfer occurs because the Contractor's EFT information was incorrect, or was revised within 30 days of Government release of the EFT payment transaction instruction to the Federal Reserve System, and—

(i) If the funds are no longer under the control of the payment office, the Government is deemed to have made payment and the Contractor is responsible for recovery of any erroneously directed funds; or

(ii) If the funds remain under the control of the payment office, the Government shall not make payment and the provisions of paragraph (d) shall apply.

(f) *EFT and prompt payment*. A payment shall be deemed to have been made in a timely manner in accordance with the prompt payment terms of this contract if, in the EFT payment transaction instruction released to the Federal Reserve System, the date specified for settlement of the payment is on or before the prompt payment due date, provided the specified payment date is a valid date under the rules of the Federal Reserve System.

(g) *EFT and assignment of claims*. If the Contractor assigns the proceeds of this contract as provided for in the assignment of claims terms of this contract, the Contractor shall require as a condition of any such assignment, that the assignee shall provide the EFT information required by paragraph (j) of this clause to the designated office, and shall be paid by EFT in accordance with the terms of this clause. In all respects, the requirements of this clause shall apply to the assignee as if it were the Contractor. EFT information that shows the ultimate recipient of the transfer to be other than the Contractor, in the absence of a proper assignment of claims acceptable to the Government, is incorrect EFT information within the meaning of paragraph (d) of this clause.

(h) *Liability for change of EFT information by financial agent*. The Government is not liable for errors resulting from changes to EFT information provided by the Contractor's financial agent.

(i) *Payment information*. The payment or disbursing office shall forward to the Contractor available payment information that is suitable for transmission as of the date of release of the EFT instruction to the Federal Reserve System. The Government may request the Contractor to

designate a desired format and method(s) for delivery of payment information from a list of formats and methods the payment office is capable of executing. However, the Government does not guarantee that any particular format or method of delivery is available at any particular payment office and retains the latitude to use the format and delivery method most convenient to the Government. If the Government makes payment by check in accordance with paragraph (a) of this clause, the Government shall mail the payment information to the remittance address in the contract.

(j) *EFT information*. The Contractor shall provide the following information to the designated office. The Contractor may supply this data for this or multiple contracts (see paragraph (b) of this clause). The Contractor shall designate a single financial agent per contract capable of receiving and processing the EFT information using the EFT methods described in paragraph (c) of this clause.

(1) The contract number (or other procurement identification number).

(2) The Contractor's name and remittance address, as stated in the contract(s).

(3) The signature (manual or electronic, as appropriate), title, and telephone number of the Contractor official authorized to provide this information.

(4) The name, address, and 9-digit Routing Transit Number of the Contractor's financial agent.

(5) The Contractor's account number and the type of account (checking, saving, or lockbox).

(6) If applicable, the Fedwire Transfer System telegraphic abbreviation of the Contractor's financial agent.

(7) If applicable, the Contractor shall also provide the name, address, telegraphic abbreviation, and 9-digit Routing Transit Number of the correspondent financial institution receiving the wire transfer payment if the Contractor's financial agent is not directly on-line to the Fedwire Transfer System; and, therefore, not the receiver of the wire transfer payment.

I.12 52.236-8 Other Contracts (Apr 1984) (Deviation)

The Government may undertake or award other contracts for additional work at or near the site of the work under this contract. The Contractor shall fully cooperate with the other contractors and with Government employees and shall carefully adapt scheduling and performing the work under this contract to accommodate the additional work, heeding any direction that may be

provided by the Contracting Officer. The Contractor shall not commit or permit any act that will interfere with the performance of work by any other contractor or by Government employees.

I.13 52.244-6 Subcontracts for commercial Items and Commercial Components (Oct 1998)

(a) Definition

Commercial item, as used in this clause, has the meaning contained in the clause at 52.202-1, definitions.

Subcontract, as used in this clause, includes a transfer of commercial items between divisions, subsidiaries, or affiliates of the Contractor or subcontractor at any tier.

(b) To the maximum extent practicable, the Contractor shall incorporate, and require its subcontractors at all tiers to incorporate, commercial items or nondevelopmental items as components of items to be supplied under this contract.

(c) Notwithstanding any other clause of this contract, the Contractor is not required to include any FAR provision or clause, other than those listed below to the extent they are applicable and as may be required to establish the reasonableness of prices under Part 15, in a subcontract at any tier for commercial items or commercial components:

(1) 52.222-26, Equal Opportunity (E.O. 11246);
(2) 52.222-35, Affirmative Action for Disabled Veterans and Veterans of the Vietnam Era (38 U.S.C. 4212(a));
(3) 52.222-36, Affirmative Action for Workers with Disabilities (29 U.S.C. 793); and
(4) 52.247-64, Preference for Privately Owned U.S.-Flagged Commercial Vessels (46 U.S.C. 1241) (flow down not required for subcontracts awarded beginning May 1, 1996).

(d) The Contractor shall include the terms of this clause, including this paragraph (d), in subcontracts awarded under this contract.

I.14 52.252-6 Authorized Deviations in Clauses (Apr 1984)

(a) The use in this solicitation or contract of any Federal Acquisition Regulation (48 CFR Chapter 1) clause with an authorized deviation is indicated by the addition of "(DEVIATION)" after the date of the clause.

(b) The use in this solicitation of any Department of Interior Acquisition Regulation (48 CFR Chapter 14) clause with an authorized deviation is indicated by the addition of "(DEVIATION)" after the name of the regulation.

# PART III - LIST OF DOCUMENTS, EXHIBITS AND OTHER ATTACHMENTS

# SECTION J - LIST OF ATTACHMENTS

J.1 WBR 1452.215-904 Applicability of Documents--Bureau of Reclamation--Lower Colorado Region (Nov 1996)

The documents, exhibits, and other attachments which are identified in this Section J, apply to and are a part of this contract. In the event that any document is missing in whole or in part from this document when received, the Contracting Officer shall be notified immediately.

J.2 WBR 1452.215-905 List of Contract Documents--Bureau of Reclamation--Lower Colorado Region (Nov 1996)

| Attachment No. | Title | No. of Pages |
|---|---|---|
| 1 | Appendix A | 14 |
| 2 | Department of Labor Wage Rate | 3 |
| 3 | Release of Claims form (DI-137) | 1 |
| 4 | Drawings (See Volume 2) | 73 |

*ATTACHMENT 1*

# *APPENDIX A*

# APPENDIX A
# ALLIS-CHALMERS MANUFACTURING COMPANY'S PATENTED HYDRO-MECHANICAL PRESSURE REGULATOR WITH OUTSIDE PILOT CONTROL VALVE FOR UNITS A-3, A-4, A-6 and A-7 BOULDER POWER PLANT INSTRUCTION No. 42

For figures refer to attached drawings 42-A, and 42 B. (Drawing No. 45-D-5485)

DESCRIPTION - It consists of three principal elements, namely: (1) The By Pass Proper. (2) The Pilot Valve Control (Automatic and Hand operated). (3) The Operating Mechanism and Dashpot.

The various parts and their operating function are made plain from the following description and reference to diagrammatic drawings hereto attached.

BY PASS

This consists of the inlet elbow (1) connected to the turbine casing, and of the discharge ring (2) of the "White s diffuser type" bolted all to the energy absorber (2a), concreted into the foundation. 'The valve stem (3) carries the mushroom shaped disk (4) held to it by a split retainer ring (3b). When moving downward it opens the outlet of the pressure regulator. The disk (4) is guided by the lower extension (3a) of stem (3) in bearing (2b) of a spider in the diffuser or discharge ring (2). Under penstock-pressure this mushroom disk (4) would tend to open, but is held-closed by a piston (5) mounted on the upper portion of stem (3), and sliding in the bronze bushed cylinder (6) forming the upper extension of elbow (1), and closed off by a removable cover (7) with drain (7a).

The valve seat of the by pass is provided with a renewable ring (8) in elbow (1) and forming the seat for the removable liner ring (9) fastened to disk (4). Ring (8) can be brought upwardly into elbow (1) and removed when disk (4) is taken off the stem (3). Piston (5) is provided with a packing and gland (10) against cylinder (6). When penstock pressure is applied underneath piston (5) the mushroom disk (4) is held tightly against its seat. Since penstock pressure is applied thru the control valve (V) from a source "downstream" of the butterfly valve of the turbine, pressure cannot be applied when butterfly valve is closed and no penstock pressure prevails in turbine casing and elbow (1). To permit of holding the by-pass closed, i.e., pressing seat ring (8) against seat ring (9) an auxiliary cylinder space (A) is provided by a piston (5a) below piston (5).

This is supplied with penstock pressure from a source "upstream" of the butterfly valve, by a pipe of liberal size so that on quick movement of the by-pass this auxiliary displacement (A)is carried back and forth without serious pressure variation. A drain valve (B) is provided from this auxiliary space (A) so that by-pass can open by its own weight when the supply valve above the

butterfly valve is shut-off. A packing (10a) is provided where the stem (3) projects thru the bottom of the auxiliary cylinder (A), a packing (l0b) also being provided where the stem projects into cylinder (6).

To avoid excessive pressure in cylinder (A) in case the supply valve above butterfly valve and drain valve (B) are erroneously closed, a relief valve is provided in the pressure supply line.

By varying the pressure in cylinder (6) the by-pass assumes a corresponding position, or opening of pressure regulator.

PILOT VALVE CONTROL

To move the by- pass directly by the governor would require considerable additional foot-pound capacity over that necessary to move the turbine gates. The hydraulic control reduces this requirement normally to an almost negligible quantity. The function of this control valve as also diagrammatically shown on attached print 42-B is as follows:

The inlet to the valve is from a large supply pipe tapped "downstream" of the butterfly valve and after passing thru a system of strainers. The valve consists of the housing (11) containing the control piston (12) and communicating with the cylinder (6), and with the drain (C) or discharge from the valve. To hold the by-pass (disk 4) closed the control piston (12) is seated on the removable rings (12a) and (12b), and the pressure inlet communicates with cylinder (6) thru port area (D). For the purpose of pilot control of valve, the control piston (12) is enlarged at upper end by a piston (12c) and stem (12d) projecting thru the valve cover (13) which communicates with the discharge pipe (l3b). Pressure is supplied to space (E) above piston (12c) by means of removable diaphragm (14). Control piston (12) is hollow, its upper portion being lined with a renewable ring (15), closed off by the pilot stem (16) projecting thru the valve cover (13). Packing boxes are provided, between bronze liner of valve housing, and piston (12c), between valve cover (13) and stem (12d), and between pilot (16) and stem (12d). When pilot (16) seats on outlet (15) the pressure supplied thru diaphragm (14) to space (E) above piston- (12c) holds the outlet (12a) and (12b) closed. When pilot (16) is raised pressure in (E) drops and valve (12) follows pilot (16) opening outlet (C) and reducing inlet port (D), and vice versa when pilot (16) is lowered. Cover (13) is closed off by upper cover (13a), the leakage space (F) being drained thru pipe (13b). Alternatively this drain can be plugged and the plug (l6a) in pilot (16) removed so that the leakage from the packings into space (F) can be drained centrally thru (16b) in the pilot (16) and control piston (12). The movement of pilot (16) is obtained automatically or by hand, by means of:

THE OPERATING MECHANISM AND DASHPOT

The cover (7) of the pressure regulator has two integral bearings (7c) and (7b) with removable caps, and supporting a bell crank shaft (17) with adjustable cross head (17a) pivotted to the connecting rod (18) of the turbine gate operating mechanism. The crank shaft (17) has two integral levers (17c) and (17d) pivoted to steel rods (19a) and (19b) supporting the yoke (20) fastened to the stem (21) to which is forged integrally at its lower end the oil dashpot piston (21a), lapped into the bore of a cylinder (22), guided in the upper bushed extensions of cover (7). This cylinder is coupled to the stem (3) and disk (4) allowing an axial play of about ½ inch for a relative movement between the two. A pre-compressed powerful spring (23) tends to preserve this play of ½ inch. If dashpot piston (21a) is locked to the cylinder (22) the governor on closing the turbine gates compresses this spring so that after that ½ inch movement, the governor acts directly upon disk (4). Similarly any upward movement of cylinder (22) by the opening movement of the turbine gates by the governor would expand the spring (23) that ½ inch, whereby the turbine gates are prevented from opening if the disk (4) or other sliding parts connected thereto should stick. Thus the turbine gates cannot close or open in case the pressure regulator should stick and fail to also move. The locking of cylinder (22) to piston (21a), i.e. stem (21) is accomplished by means of cylinder cover (24) and sleeve (25) with hand wheel (25a). This sleeve is threaded and engages into stem (21), it can be moved along the stem by turning handwheel (25a). When the turbine gates are wide open the dashpot piston (21a) rests against a shoulder (24a) on cover (24), and when the pressure regulator (disk 4 seated) is closed. If sleeve (25) is way down seating against shoulder (24b) then piston (21a) and cylinder (22) are locked so that the dashpot action is eliminated and the pressure regulator acts as a synchronous, or water wasting by-pass, disk (4) opening as the turbine gates are closed, or blocking the action of the governor, when the pressure regulator fails to move.

Water saving Action

This is attained when sleeve (25) is in uppermost position. The dashpot piston (21a) and stem (21) are hollow and a bypass (26) is provided in the central bore, adjustable from outside on the top above yoke (20). With the dashpot filled with oil and the by-pass opened, accordingly, any slow downward movement of piston (21a) by reason of closing of the turbine gates by the governor, permits the oil to rise thru the by-pass (26) without causing an over-pressure below the piston (21a) sufficient to compress spring (23). On fast downward movement - rapid closing of turbine gates - the spring (23) is compressed until the play of ½ inch, as explained before is fully absorbed. The distance between lower face of sleeve (25) and shoulder (24b) on cover equals the full stroke of the turbine. When the turbine gates are wide open, therefore, the pressure regulator cannot go wide open by itself because piston (21a) rests against shoulder (24a) of cover (24), a two-fold draw of water from the pipeline is thus made impossible. Similarly pressure regulator can only go wide open when the turbine gates are closed, and for any intermediate turbine gate opening the pressure regulator can only open the remaining available stroke between lower end

of sleeve (25) and shoulder (24b) of cover (24), in other words only a sum equal to part turbine discharge and corresponding part pressure regulator discharge, at any rate not more than either full turbine discharge or full pressure regulator discharge can take place. Two check valves (27a and 27b) are provided in the piston (21a) which on opening of turbine gates with pressure regulator closed, permit the oil to pass freely from top to bottom of dashpot piston (21a) so that the governor can open the turbine gates unhindered at a rate set so that no serious pressure decreases are caused in the penstock. By means of adjustment of the oil dashpot by-pass (26) the rate of circulation of oil as caused by the expansion of spring (23) is adjusted, and this determines the rate of water saving closing of the pressure regulator, taking place after due to fast movement of the turbine gates in closing direction, the pressure regulator is opened accordingly. When the turbine gates do not close further the spring (23) expands at the rate at which the oil is allowed to by-pass in the dashpot and accordingly the pressure regulator closes gradually. On a reversed movement of turbine gates the spring (23) is expanded quickly thereby closing the control valve outlet (C) and causing the pressure regulator to close as rapidly as the turbine gates are opened.

If the pressure regulator would stick and fail to open, the governor would push dashpot piston (21a) downward against cylinder (22) held fast by the disk (4) in direct contact, thus producing a high oil pressure under piston (21a), which in turn would squeeze more oil thru by-pass (26) so that the relative slippage between cylinder (22) and piston (21a) would be increased. To reduce this, the lower end of by-pass (26) is made in the form of a check valve (26a) with spring (26b), which, under abnormal oil pressure, is compressed and causes the check valve (26a) to reduce the by-pass opening. Check valve (26a) and spring (26b) are so designed that they can be removed with by-pass (26) thru the top of stem (21) for adjustment or repair.

Relay Mechanism of Pilot Control

Dashpot cover (24) has a pivot (24c) engaging a floating lever (27) with pivoted rod (28) about midway, and pivoted rod (29) at outer end. Rod (23) is pivoted to a lever (30) with a fulcrum link (31a) pivoted to control valve cover (13a). Opposite end (30a) of lever (30) is pivoted to a relay rod (31) fastened into piston (5) after projecting thru a packing box in cover (7).

When spring (23) is fully expanded the distance between pivots (24c) and (30a) is a maximum. When spring (23) is being compressed pivot (24c) moves downward accordingly. Since pivot (30a) still remains stationary, rod (28) forms the fulcrum of lever (27) thereby raising valve rod (29) and with it pilot (16) of control valve (V). This causes piston (5) and disk (4) to start moving downward, thus lowering relay rod (31) and rod (28). If cylinder (22) is not lowered further, then rod(28) causes rod (29) and pilot (16) to close or at least to hold the piston (5) in dead beat position. If cylinder (22) is kept moving downward by reason of continued fast-closing movement of the turbine gates, then pivot (24c) moves about in synchronism with pivot (30a) with the result that rod (29) is neither raised or lowered. The pilot (16) remains so raised

and the pressure regulator keeps on opening so long as spring (23) is compressed, i.e., the total mechanical play of ½ inch is reduced. Thus the pressure regulator can open wide on full closure of turbine gates. Any reversed movement of cylinder (22) expands the spring, causing pilot (16) to be seated, thereby the pressure regulator closes accordingly. This hydraulic device is therefore actuated solely by the compression and expansion of spring (23), and when functioning normally it causes the pressure regulator to open and close as the dashpot cylinder (22) is lowered or raised, and causes it to close automatically (water saving) as the spring (23) expands and so permits by-passing of oil from underneath dashpot piston (21a) thru the by-pass (26).

Independent Hydraulic Hand Control

This permits of opening the pressure regulator by hand independently of the turbine gate movement, when the sleeve (25) is in uppermost position on threaded stem (21). It cannot act when dashpot cylinder (22) and piston (21a) are locked together, for water wasting setting of pressure regulator, as any movement of disk (4) would react directly upon the turbine gates.

A hand wheel (33) can , by turning, be raised and lowered on a threaded spindle (34) hinged into the valve cover (13a). The hand wheel engages a cross head (35) pivoted to a lever (36), the opposite end (36a) of which is linked (37) to lever (30). The intermediate pivot joint (36b) of lever (36) engages a sleeve (38) which slides loosely on the stationary guide (39) fastened to cover (13a) and which on raising of hand wheel (33) is finally pushed upward against pivot joint (32a) of head (32) which latter is not a solid pivot connection between pilot (16) and floating lever (27) but is provided with a pre-compressed spring (40) in a housing (32b) so arranged that pivot joint (32a) can be pushed upward compressing spring (40) so as not to affect position of lever (27). Thus when hand wheel (33) is turned upward sufficiently to raise pilot (16) the pressure regulator starts to open, thereby lowering relay rod (31) and link (37) so that sleeve (38) is lowered to permit pivot (16) to resume new position to hold pressure regulator in correspondingly opened position. A full stroke on hand wheel (33) will produce a full stroke of pressure regulator.

Any action meanwhile of the dashpot cylinder (22) relative to rod (31) will merely change the compression of spring (40), but will not cause the pressure regulator to close, so long as hand wheel (33) has caused a lift of pilot (16) “equivalent” in movement to a compression stroke of ½ inch of spring (23), absorbed however in compression of spring (40). Naturally, therefore, as much as the pressure regulator is open as less can the turbine gates be opened also in addition, all as fixed by sleeve end (25) and stop (24a) of cylinder cover.

PERFORMANCE

A. When Getting Turbine Ready to Start

With no water pressure in the turbine casing and pressure regulator inlet, the disk (4) has a tendency to remain in lowest position, corresponding to wide open pressure regulator. It can be closed however before pressure is applied to the turbine casing. This is attained by supplying penstock pressure to the auxiliary cylinder space (A) by opening the supply valve from the pressure source "upstream" of the butterfly valve, and this should be done gradually by not opening the supply valve quickly, so as to prevent the pressure regulator from tending to close rapidly, as this would cause a high oil pressure in cylinder (22) to by-pass the oil thru its by-pass (26), and this supply should remain open during operation of the turbine to allow the displacement in cylinder (A) to circulate as the pressure regulator is opened or closed by the governor action. If for some reason this supply valve is erroneously closed the displacement out of (A) is discharged thru an emergency, safety valve set at about 350 lbs. pressure, so as to cause only a moderate reacting pressure in the cylinder and corresponding reaction upon the governor. On closing of the pressure regulator due to opening movement of the governor, a vacuum would be formed in cylinder space (A) causing a very moderate reaction in opposite direction of the governor.

Hand wheel (33) must be placed in lowermost position so that sleeve (38) is prevented from holding pilot stem (16) off seat, and which would cause opening of the pressure regulator accordingly.

Needless to state that the turbine gates should be held closed when filling turbine casing. As pressure builds up in spiral casing and pressure regulator inlet, water pressure is also supplied to control valve (V) and thus below piston (5) thereby holding pressure regulator closed, with dashpot cylinder (22) in uppermost position, and piston (21a) in lowest position (closed turbine gates) which can, of course, take place only if sleeve (25) is in uppermost position relative to stem (21).

The turbine is now ready to be started with pressure regulator acting as water saving device. As the turbine gates open, piston (21a) is pulled upward, and the oil on top of same passes readily to the space below, thru the two check valves (27a and 27b) so that the governor is not retarded.

B. To Start Turbine with Pressure Regulator Set as Water Wasting By-Pass

When the pressure regulator acts as a water wasting device, the dashpot piston (21a) and the cylinder (22) are locked together, so that any motion of piston (21a) due to movement of turbine gates is directly is directly transmitted to disk (4) except for the ½ inch compression of spring (23). When acting water saving the piston (21a) is not coupled to the cylinder (22). Therefore as

soon as spring (23) is being compressed and thus produced an over-pressure in the oil below piston (21a) the by-pass (26) allows oil to by-pass. Thus a relative motion between piston (21a) and cylinder (22) takes place, at a rate depending on the setting of dashpot by-pass (26). This relative movement is large when the by-pass (26) is openly considerably, and is zero (as explained before) when cylinder and piston are locked together. In order, therefore, to obtain the necessary full stroke of 19 inches of disk (4) a correspondingly greater stroke (21-1/2 inches), depending on setting of by-pass (26), is necessary.

When operating as water wasting by-pass with no slippage between dashpot piston and cylinder, care must be taken that a full turbine gate stroke does not produce more than the 19 inches stroke of the disk (4) plus about half of the ½ inch of compression of spring (23). If this is overlooked the turbine gates either cannot open wide within 21-1/2 - 19, or 2-1/2" stroke on yoke (20), or, depending on setting, cannot close within 2-1/2 inches. The proper adjustment of stroke is obtained by the corresponding setting of crosshead (17a), i.e., by adjustment of the lever arm in the crank (17).
When the adjustment of this crank is properly made, the pressure regulator can be set to operate as synchronous (water wasting) by-pass as follows:

If full output of the turbine can be absorbed in the system the turbine can be started and paralleled and the gates opened wide. Dashpot piston (21a) is then 19 inches up and cylinder (22) is in uppermost position because disk (4) is seated. The sleeve (25) is now moved down on stem (21) by turning hand wheel (25a) until it touches surface (24b). The turbine is now ready to operate water wasting, the pressure regulator opening as the turbine gates are being closed, and vice versa.

If full load is not available the following procedure is proposed:

When pressure regulator is closed and casing under pressure and crank adjusted so that full turbine gates will produce a stroke of slightly less than 19-1/2 inches (as was the case before starting water saving), the hand wheel (33) is slowly turned upward until pressure regulator is wide open, disk (4) having made 19 inches stroke. Piston (21a) is down, so is cylinder (22). Sleeve (25) can now be lowered to seat (24b) to lock dashpot piston (21a) against cylinder (22). The turbine is now ready to start from water wasting condition. As the turbine gates are opened the pressure regulator closes.

Water Saving Operation

(a). Slow Closing of Turbine Gates

Due to setting of oil dashpot by-pass (26) the oil is by-passed when the turbine gates are closed slowly, i.e., at a rate longer than that at which the oil can by-pass without causing spring (23) to be compressed. The pressure regulator will thus remain closed.

(b). Rapid Closing of Turbine Gates

If the turbine gates are closed rapidly the oil cannot by-pass fast enough, an over pressure is built up below piston (21a) which compresses spring (23) and raises pilot (16) so that the disk (4) is opened accordingly.

Any intermediate rate of closure of turbine gates causes a corresponding amount of oil to be by-passed thru valve (26), which results in a corresponding, relative movement between piston (21a) and cylinder (22), so that the disk (4) opens only partially.

(c). Water Saving Closing Movement

As soon as the closing movement of the turbine gates ceases, the dashpot piston (21a) is held stationary. Since spring (23) has been compressed it exerts an upward force on cylinder (22), pressing oil thru by-pass (26). Thus pivot (24c) is raised relative to relay pivot (30a) thereby causing pilot (16) to drop, and which causes piston (5), i.e., disk (4), to rise, which causes piston (5), i.e., disk (4), to rise, which continues as long as cylinder (22) can rise along piston (21a). Thus a full closure of the pressure regulator is obtained, at a rate depending on the opening setting of the oil by-pass (26).

(d). Synchronous Closing of Pressure Regulator

It is obvious that any reopening of the turbine gates, before the pressure regulator has closed (water saving as explained under paragraph c) will cause a corresponding rising of dashpot cylinder (22), expansion of spring (23) and closing of pressure regulator. If the pressure regulator does not follow as rapidly as the turbine gates are being opened, or in case it sticks entirely, the governor pulls up dashpot piston (21a) in the cylinder (22) (check valves 27a and 27b then opening) and permits of opening the turbine gates until the top of piston (21a) strikes the underneath surface (24a) of cylinder cover (24).

(e). Special Setting of Sleeve (25)

As stated before the pressure regulator is set for complete water saving action when sleeve (25) is way up on stem (21), and for complete water wasting action when sleeve (25) is way down on stem (21). It is obvious that any intermediate position of sleeve (25) on stem (21) will have the effect, that the pressure regulator can no more close completely (water saving) on closed turbine gates, but remains open stationary from the point on when the sleeve (25) rests against upper surface (24b) of cylinder cover (24).

For example, if sleeve (25) is set half way down on stem (21) the turbine, when closing slowly from full gate to half gate, will not cause the pressure regulator to open, but will cause it to open as synchronous by-pass when it is closed beyond half gate. This feature may prove of value if it is desired to discharge "at all times" at least a certain fraction of full discharge.

ESSENTIAL FEATURES

It is obvious that under normal conditions the pressure regulator is operated hydro-mechanically, that is, by reason of adjustment of pressure below piston (5), by means of pilot (16), and therefore the force required by the governor on connecting rod (18) is moderate, being only that necessary to overcome friction and to compress spring (23).

Should for some reason the disk (4) or piston (5), etc. refuse to move downward when the turbine gates are being closed rapidly, then the governor compresses spring (23) until the full ½ inch play between dashpot cylinder (22) and piston (5) is taken up, whereby a rigid connection is established between disk (4) and rod (18).

On water wasting setting (cylinder (22) and piston (21a) locked together), the governor is completely stalled, and on water saving setting the oil pressure below piston (21a) becomes higher, partly closing by-pass valve (26) and thus opposing the closing movement of the governor, retarding thus its rate of closure of the turbine gates and preventing excessive pressure rise in penstock, although admitting a higher resultant speed rise of the unit on full sudden load rejection. All connections are made mechanically adequate for these emergency forces.

On opening of turbine gates the governor is not hindered in pulling piston (21a) upward in cylinder (22) because the relief valves (27a) and (27b) permit free circulation of oil. This is permissible, because the rate of opening of turbine gates is set "apriori" so as to avoid undesirable pressure decreases, due to acceleration of the water in the penstock.

EMERGENCY CONDITIONS

As stated before all parts are made mechanically adequate to withstand any stresses that may arise due to any emergency condition.

Since the control valve (V) can never be put under penstock pressure without such pressure also existing under piston (5) and disk (4), the excessive forces in either direction cannot be more than:

(a). If no pressure exists under piston (5) if control valve piston (12) sticks in wide open position, the pressure regulator will open until it is stopped on surface (24b) of cover (24) and then the full downward force on disk (4) acts on governor connections tending to close turbine gates.

(b). If control valve piston (12) sticks and fails to move in any intermediate position of disk (4) the governor can open the turbine gates unhindered until piston (21a) is pulled up against surface (24a) of dashpot cylinder cover (24). It cannot open further unless it has surplus energy to overcome the resisting force of the pressure regulator.

SENSITIVENESS

The rate at which the pressure regulator opens or closes, depends on the rate at which the displacement of piston (5) is discharged on opening, or pressure admitted on closing of the pressure regulator, and this in turn is fixed by the outlet opening of the control piston (12) of the control valve (V) and the inlet opening area (D). This in turn is fixed by the stroke of pilot (16) i.e. the amount of relative motion between pivots (24b) and (30a) caused by the compression of spring (23). The spring (23) can be compressed a total of ½ inch before interlocking of dashpot cylinder (22) and piston (5), i.e., valve disk (4), takes place. The rod (28) is so disposed between floating lever (27) and relay lever (30) that a movement of ½ inch on pivot (24c) produces a stroke of 1.25 times ½ inch or 5/8" on pilot (16). The control piston (12) is limited by stops in its cylinder space E to 5/8 inch, therefore ½ inch compression of spring (23) will be required to produce full stroke of valve (12). The location of rod (28) as explained above is marked by corresponding letters stamped on levers 27 and 30. Holes are provided marked by another letter each on levers 27 and 30 whereby a ratio of 2:1 instead of 1.25:1 can be obtained. Care should be exercised that rod (28) is pivoted correctly by inserting the pins only near the respective equal letters, as otherwise the necessary double-compensating effect of pilot (16) is not obtained.

It will be found that very little lift on pilot (16) is required before the pressure regulator is ready to start opening. In other words little delay is caused between initial quick movement of turbine gates (change of flow in penstock) and initial movement of turbine gates (change or flow in

penstock) and initial movement of pressure regulator, and which in turn causes only a slight initial pressure change in the penstock.

Similarly a relatively small turn of hand wheel (33) will lift pilot (16) after cross head (38) has been brought against head (32a) of pilot stem. The hand wheel (33) is padlocked against rod (34) to prevent unauthorized movement.

Pilot stem (16) is not rigidly connected to rod (29). A flexible means is provided by means of spring casing (32b) and spring (40). Care should be taken that when pilot (16) is seated and spring (23) fully expanded that there is no slack in the connection between pilot (16) and rod (29), i.e., floating lever (27) as this would cause lost motion resulting in delay between initial movement of turbine gates and movement of pilot (16), i.e., of pressure regulator. It has the purpose, however, to prevent transmission of any material force such as that from spring (23) to be transmitted to pilot (16) and intermediate connections.

The proper seating of pilot stem (16) on outlet of control piston (12) and the seating of control piston (12) itself on ring (12b) the main outlet of control valve, can be ascertained when the line marked on the stationary sleeve (39). If the mark on pilot (16) is above that of sleeve (39) it is a sure sign that the control valve if off seat, and would cause the pressure regulator to open.

ADJUSTING PRESSURE REGULATOR

Before this pressure regulator was shipped from the Company's Works it was completely assembled with the turbine, and its operating mechanism, and all adjustments of levers, rods, etc. was fixed, and can be checked from drawing 818-215.

The length of lever arm (17) (position of crosshead 17a) and of connecting rod (18) must be determined in field and from data given on drawing 818-231.

OIL DASHPOT

It is of importance that the oil dashpot functions properly. When filling the cylinder (22) with oil utmost care must be exercised to free all air under piston (21a). It is suggested when filling or changing oil, if it has become "gummy", to remove bypass (26), cylinder cover (24) and piston (21a). After cylinder and piston are carefully cleaned (by rinsing with gasoline) and all fluff from rags, etc., removed, fill the cylinder to about 2/3 of the total height with oil having a viscosity which does not sensitively change under variations of temperature. Shock absorber oil is recommended. Insert piston (21a) and lower it gently. If the oil is too thick the piston may not drop fast enough in which case a thinner oil should be used, all of which, however, depends on how slow the pressure regulator is to close by reason of dashpot action, i.e., setting of by-pass (26). Pull piston (21a) up again until it comes to within about four inches of the oil level in

cylinder (22), make sure that no air is drawn thru the check valves (27a) and (27b). If the oil level gets too close to the top of the piston, then add oil. Repeat this process several times, to make sure that all air is driven out of cylinder below piston. Insert the by-pass (26). When the bulb (26a) has just closed off the by-pass opening, the by-pass rod (26) can be locked in position by the lock nut (26d) which also carries a short rod (26e). When the bulb (26a) just about closes the by-pass opening in bushing (26c) the top of the square of by-pass rod (26) will be flush with the top of that pin. Thus a measure is obtained as to how much the by-pass has been opened when turning up on the square. When the adjustment is made the cap (26f) can be put on to avoid ready tampering with this adjustment.

MAINTENANCE

With the oil dashpot kept clean and properly filled with oil, the packings in pistons 5, 5a and 10a, also the three packings in control valve (V) kept in proper condition to avoid excessive leakage, there remains nothing to be inspected from time to time, except the condition of pilot seat (15), lower part of pilot (16), diaphragm (14), control valve outlet seat rings (12a) and (12b) and seat rings (8) and (9) of main outlet of pressure regulator. Poor physical condition of all these due to excessive wear will impair the sensitiveness of action of the pressure regulator and may even cause it to open. The water supply to control valve (V) is supposed to have passed thru a strainer system, which is to withhold drift matter. Should diaphragm (14) for instance become plugged up, the pressure in cylinder space (E) may fail, whereby the pilot (16) would be forced upwardly, causing spring (40) in the connection between pilot (16) and floating lever (27) to be compressed, whereby the pressure regulator starts to go open until stopped when sleeve (25) faces surface (24b).

The outlet under pilot (16) cannot become clogged because the diaphragm (14) would first have to become plugged, therefore the pressure regulator will not “fail to open” unless control valve (12) sticks. It will rather have a tendency to “go open” if any and this would become evident to the operator, whereas a condition causing failure to open would not be noticed in advance, and while refusal of the pressure regulator to open would be undesirable it would stall or retard the governor from closing the turbine gates rapidly.

STARTING AND ADJUSTING OIL BY-PASS IN DASHPOT

It is necessary whenever oil is changed in dashpot to properly adjust the by-pass (26) for the required water saving rate of closing. The following procedure is suggested:

1. Close turbine gates.

2. See that pilot (16) is seated, which is the case when the mark on stem (16) is flush with the mark on sleeve (39).

3. The by-pass (26) in dashpot is closed when the top of the square on the rod (26) is flush with the rod (26e) on the lock nut (26d).

Back off about 1/64 inch to allow a moderate by-pass opening on bulb (26).

The water saving rate of closure of pressure regulator, that is, the rate at which oil is by-passed around bulb (26), must now be determined by actual tests.

4. Turn hand wheel (33) upward gently until pressure regulator is about 1/4 open.

5. Turn handwheel (33) down fast and completely. This would tend to seat again pilot (16) thereby causing the pressure to build up rapidly under piston (5). This would tend to close the pressure regulator rapidly. However, a fast upward movement of piston (5) would tend to raise relay rod (31) and also connecting rod (28). Since the oil cannot bypass fast around bulb (26) and since check valves (27a and 27b) are closed and since dashpot piston (21a) is held stationary, the oil pressure under piston (21a) increases, and thus begins to compress spring (23), and causes rod (29), that is, pilot (16), to be raised, thereby checking the fast closing movement of the pressure regulator. It can thus be seen that the pressure regulator can close only at a rate fixed by the amount of oil by-passed thru piston (21a) around bulb (26). Repeat this process until the desired closing rate over the full stroke of pressure regulator is obtained.

The pressure regulator is now ready to take care of a full sudden load rejection.

CAUTION

1. Be sure that the penstock supply to the auxiliary cylinder (A) is not closed during operation of the turbine.

2. Be sure that the supply thru the strainer system to control valve (V) is not shut off during operation, as this would cause the pressure regulator to “go open”.

3. Never shut the 14 inch gate valve on the discharge side of control valve (V) except on dismantling of control valve. Be sure to open it before filling casing, because this gate valve is not intended for full penstock over pressure.

4. Whenever the relay, levers 27, 30, etc., and rod (28) are removed and reassembled care must be exercised that rod (28) is properly pivoted to levers (27) and (30). The corresponding holes in levers (27) and (30) are marked with the same symbols. If this is not observed the lever ratio will

be incorrect, so that the resultant movement of pilot (16) is not compensated. A simultaneous movement of dashpot cylinder (22) and relay rod (31) would then cause a resultant movement of pilot (16) instead of zero movement.

5. All important metal to metal sliding joints are provided for periodic alemite grease lubrication.

ALLIS-CHALMERS MANUFACTURING COMPANY
HYDRAULIC TURBINE DIVISION
ENGINEERING DIVISION

Milwaukee, Wis. December 1938

*ATTACHMENT 2*

# *U.S. DEPARTMENT OF LABOR*
# *WAGE RATE DETERMINATION:*

# *MOHAVE COUNTY, ARIZONA*

GENERAL DECISION **AZ000015** 06/02/00 AZ15
General Decision Number **AZ000015**

Superseded General Decision No. AZ990015

State: Arizona

Construction Type:
HEAVY

County(ies):
MOHAVE YUMA

HEAVY CONSTRUCTION PROJECTS (excluding dam construction)

| Modification Number | Publication Date |
|---|---|
| 0 | 02/11/2000 |
| 1 | 06/02/2000 |

COUNTY(ies):
MOHAVE YUMA

* CARP0408B 06/01/2000

| | Rates | Fringes |
|---|---|---|
| CARPENTERS (Including Form Work) | 18.70 | 3.59 |

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* ENGI0428E 06/01/2000

| | Rates | Fringes |
|---|---|---|
| POWER EQUIPMENT OPERATORS: | | |
| ZONE 1: | | |
| Group 1 | 15.64 | 4.18 |
| Group 2 | 18.91 | 4.18 |
| Group 3 | 19.99 | 4.18 |
| Group 4 | 21.02 | 4.18 |

POWER EQUIPMENT OPERATORS CLASSIFICATIONS

GROUP 1: Gin Truck; and Loader, 3.5 cu yd and under

GROUP 2: Backhoe, under 1 cu yd; Bulldozer; Crane, under 15 tons; Blade/Grader; Field Equipment Serviceman; Loader, over 3.5 cu yd but less than 6 cu yd; Oiler; and Scraper

GROUP 3: Backhoe, up to 10 cu yd; Bending Machine; Crane, over 15 tons but less than 100 tons; Loader, 6 cu yd but less than 10 cu yd; and Mechanic

GROUP 4: Backhoe, 10 cu yd and over; Crane, 100 tons and over; and Loader 10 cu yd and over

All Operators, Oilers, and Motor Crane Drivers on equipment wit Booms, except concrete pumping truck booms, including Jibs, shall receive $0.01 per hour per foot over 80 ft in addition to regular rate of pay

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PLUM0469F 07/01/1999

| | Rates | Fringes |
|---|---|---|
| PLUMBERS AND PIPEFITTERS: | | |
| ZONE 1: | | |
| Commercial | 22.35 | 7.40 |
| Industrial (Power Plants, Pumping Stations, Pipelines) | 25.35 | 7.40 |

ZONE 2:
Commercial 25.35 7.40
Industrial (Power Plants, Pumping
Stations, Pipelines) 28.35 7.40

ZONE DEFINITIONS FOR PLUMBERS AND PIPEFITTERS

ZONE 1: Area within a 20 mile radius of the center of the following towns: Kingman, Lake Havasu City, Prescott, and Yuma

ZONE 2: Area outside a 20 mile radius of the center of the above towns

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SUAZ2002A 02/01/1994

| | Rates | Fringes |
|---|---|---|
| CEMENT MASONS | 15.76 | 3.05 |
| ELECTRICIANS | 17.00 | 2.96 |
| LABORERS: | | |
| General | 9.22 | 2.39 |
| Pipelayer | 11.02 | |
| Concrete Worker | 13.11 | 2.77 |

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TEAM0104D 06/01/1998

| | Rates | Fringes |
|---|---|---|
| TRUCK DRIVERS: | | |
| Truck, 2-axle; Water Truck under 2500 gallons | 13.24 | 3.67 |
| Water Truck 2500 gallons but less than 4000 gallons | 13.28 | 3.67 |
| Water Truck 4000 gallons and over | 14.13 | 3.67 |

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WELDERS - Receive rate prescribed for craft performing operatio to which welding is incidental.

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Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29 CFR 5.5(a)(1)(v)).

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In the listing above, the "SU" designation means that rates listed under that identifier do not reflect collectively bargained wage and fringe benefit rates. Other designations indicate unions whose rates have been determined to be prevailing.

WAGE DETERMINATION APPEALS PROCESS

1.) Has there been an initial decision in the matter? This can be:

* an existing published wage determination
* a survey underlying a wage determination
* a Wage and Hour Division letter setting forth a position on a wage determination matter
* a conformance (additional classification and rate)

ruling

On survey related matters, initial contact, including requests for summaries of surveys, should be with the Wage and Hour Regional Office for the area in which the survey was conducted because those Regional Offices have responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the forma process described here, initial contact should be with the Branch of Construction Wage Determinations. Write to:

Branch of Construction Wage Determinations
Wage and Hour Division
U. S. Department of Labor
200 Constitution Avenue, N. W.
Washington, D. C. 20210

2.) If the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N. W.
Washington, D. C. 20210

The request should be accompanied by a full statement of the interested party's position and by any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3.) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U. S. Department of Labor
200 Constitution Avenue, N. W.
Washington, D. C. 20210

4.) All decisions by the Administrative Review Board are final.

END OF GENERAL DECISION

*ATTACHMENT 3*

# *RELEASE OF CLAIMS FORM*
# *(DI-137)*

UNITED STATES
DEPARTMENT OF THE INTERIOR

BUREAU OF RECLAMATION

(Bureau or Office)

Contract Number

Date

# RELEASE OF CLAIMS

WHEREAS, by the terms of the above-identified contract for

entered into by the United States of America, hereinafter also referred to as the United States, and the contractor

,

it is provided that after completion of all work, and prior to final payment, the contractor will furnish the United States with a release of all claims;

NOW, THEREFORE, in consideration of the above premises and the payment by the United States to the contractor of the amount now due under the contract, to wit, the sum of

dollars

($ ), the contractor hereby remises, releases, and forever discharges the United States, its officers, agents, and employees, of and from all manner of debts, dues, liabilities, obligations, accounts, claims, and demands whatsoever, in law and equity, under or by virtue of the said contract except:

IN WITNESS WHEREOF, the contractor has executed this release this day of , 20

(Contractor)

(Street Number of R.F.D.)

(City) (State) (Zip Code)

By

(Signature)

(Name -- Type or Print)

(Title)

*COMPLETE ONLY IF CONTRACTOR IS A CORPORATION*

I, CERTIFY That I am the

of the corporation named as contractor herein; that , who signed this release on behalf of the corporation, was then of said corporation; and that said release was duly signed for and on behalf of said corporation by authority of its governing body.

[Seal]

(Signature)

*ATTACHMENT 4*

# *DRAWINGS*

***(Not available online -***
***Please contact the issuing office at (702) 293-8779 to request a copy of the drawings)***

# PART IV - REPRESENTATIONS AND INSTRUCTIONS

# SECTION K - REPRESENTATIONS, CERTIFICATIONS, AND OTHER STATEMENT OF OFFERORS
(This section will be removed from the contract document)

K.1 52.252-1 Solicitation Provisions Incorporated by Reference (Feb 1998)

This solicitation incorporates one or more solicitation provisions by reference, with the same force and effect as if they were given in full text. Upon request, the contracting officer will make their full text available. The offeror is cautioned that the listed provisions may include blocks that must be completed by the offeror and submitted with its quotation or offer. In lieu of submitting the full text of those provisions, the offeror may identify the provision by paragraph identifier and provide the appropriate information with its quotation or offer. Also, the full text of a solicitation provision may be accessed electronically via the Internet at this address: http://www.arnet.gov/far.

52.203-11 Certification and Disclosure Regarding Payments to Influence Certain Federal Transactions (Apr 1991)

K.2 52.203-2 Certificate of Independent Price Determination (Apr 1985)

(a) The offeror certifies that--

(1) The prices in this offer have been arrived at independently, without, for the purpose of restricting competition, any consultation, communication, or agreement with any other offeror or competitor relating to (i) those prices, (ii) the intention to submit an offer, or (iii) the method of factors used to calculate the prices offered;

(2) The prices in this offer have not been and will not be knowingly disclosed by the offeror, directly or indirectly, to any other offeror or competitor before bid opening (in the case of a sealed bid solicitation) or contract award (in the case of a negotiated solicitation) unless otherwise required by law; and

(3) No attempt has been made or will be made by the offeror to induce any other concern to submit or not to submit an offer for the purpose of restricting competition.

(b) Each signature on the offer is considered to be a certification by the signatory that the signatory--

(1) Is the person in the offeror's organization responsible for determining the prices being offered in this bid or proposal, and that the signatory has not participated and will not participate in any action contrary to subparagraphs (a)(1) through (a)(3) above; or

(2) (i) Has been authorized, in writing, to act as agent for the following principals in certifying that those principals have not participated, and will not participate in any action contrary to subparagraphs (a)(1) through (a)(3) above:

_____

_____

*[Insert full name of person(s) in the offeror's organization responsible for determining the prices offered in this bid or proposal, and the title of his or her position in the offeror's organization]*;

(ii) As an authorized agent, does certify that the principals named in subdivision (b)(2)(i) above have not participated, and will not participate, in any action contrary to subparagraphs (a)(1) through (a)(3) above; and

(iii) As an agent, has not personally participated, and will not participate, in any action contrary to subparagraphs (a)(1) through (a)(3) above.

(c) If the offeror deletes or modifies subparagraph (a)(2) above, the offeror must furnish with its offer a signed statement setting forth in detail the circumstances of the disclosure.

K.3 52.204-3 Taxpayer Identification (Oct 1998)

(a) Definitions.

Common parent, as used in this provision, means that corporate entity that owns or controls an affiliated group of corporations that files its Federal income tax returns on a consolidated basis, and of which the offeror is a member.

Taxpayer Identification Number (TIN), as used in this provision, means the number required by the Internal Revenue Service (IRS) to be used by the offeror in reporting income tax and other returns. The TIN may be either a Social Security Number or an Employer Identification Number.

(b) All offerors must submit the information required in paragraphs (d) through (f) of this provision to comply with debt collection requirements of 31 U.S.C. 7701(c) and 3325(d), reporting requirements of 26 U.S.C. 6041, 6041A, and 6050M, and implementing regulations issued by the IRS. If the resulting contract is subject to the payment reporting requirements described in Federal Acquisition Regulation (FAR) 4.904, the failure or refusal by the offeror to

furnish the information may result in a 31 percent reduction of payments otherwise due under the contract.

(c) The TIN may be used by the Government to collect and report on any delinquent amounts arising out of the offeror's relationship with the Government (31 U.S.C. 7701(c)(3)). If the resulting contract is subject to the payment reporting requirements described in FAR 4.904, the TIN provided hereunder may be matched with IRS records to verify the accuracy of the offeror's TIN.

(d) Taxpayer Identification Number (TIN).

- ❑ TIN:._____
- ❑ TIN has been applied for.
- ❑ TIN is not required because:
- ❑ Offeror is a nonresident alien, foreign corporation, or foreign partnership that does not have income effectively connected with the conduct of a trade or business in the United States and does not have an office or place of business or a fiscal paying agent in the United States;
- ❑ Offeror is an agency or instrumentality of a foreign government;
- ❑ Offeror is an agency or instrumentality of the Federal Government.

(e) Type of organization.

- ❑ Sole proprietorship;
- ❑ Partnership;
- ❑ Corporate entity (not tax-exempt);
- ❑ Corporate entity (tax-exempt);
- ❑ Government entity (Federal, State, or local);
- ❑ Foreign government;
- ❑ International organization per 26 CFR 1.6049-4;
- ❑ Other _____

(f) Common parent.

- ❑ Offeror is not owned or controlled by a common parent as defined in paragraph (a) of this provision.
- ❑ Name and TIN of common parent:
  Name _____
  TIN _____

K.4 52.204-5 Women-owned Business (Other than Small Business) (May 1999)

(a) Definition. "Women-owned business concern," as used in this provision, means a concern which is at least 51 percent owned by one or more women; or in the case of any publicly owned business, at least 51 percent of its stock is owned by one or more women; and whose management and daily business operations are controlled by one or more women.

(b) Representation. [*Complete only if the offeror is a women-owned business concern and has not represented itself as a small business concern in paragraph (b)(1) of FAR 52.219-1, Small Business Program Representations, of this solicitation.]* The offeror represents that it ( ) is a women-owned business concern.

K.5 52.209-5 Certification Regarding Debarment, Suspension, Proposed Debarment, and Other Responsibility Matters (Mar 1996)

(a) (1) The Offeror certifies, to the best of its knowledge and belief, that--

(i) The Offeror and/or any of its Principals--

(A) Are ( ) are not ( ) presently debarred, suspended, proposed for debarment, or declared ineligible for the award of contracts by any Federal agency;

(B) Have ( ) have not ( ), within a 3-year period preceding this offer, been convicted of or had a civil judgment rendered against them for: commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, state, or local) contract or subcontract; violation of Federal or state antitrust statutes relating to the submission of offers; or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, tax evasion, or receiving stolen property; and

(C) Are ( ) are not ( ) presently indicted for, or otherwise criminally or civilly charged by a governmental entity with commission of any of the offenses enumerated in subdivision (a)(1)(i)(B) of this provision.

(ii) The Offeror has ( ) has not ( ), within a 3-year period preceding this offer, had one or more contracts terminated for default by any Federal agency.

(2) "Principals," for the purposes of this certification, means officers; directors; owners; partners; and, persons having primary management or supervisory responsibilities within a business entity (e.g., general manager, plant manager, head of a subsidiary, division, or business segment, and similar positions).

THIS CERTIFICATION CONCERNS A MATTER WITHIN THE JURISDICTION OF AN AGENCY OF THE UNITED STATES AND THE MAKING OF A FALSE, FICTITIOUS, OR FRAUDULENT CERTIFICATION MAY RENDER THE MAKER SUBJECT TO PROSECUTION UNDER SECTION 1001, TITLE 18, UNITED STATES CODE.

(b) The Offeror shall provide immediate written notice to the Contracting Officer if, at any time prior to contract award, the Offeror learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

(c) A certification that any of the items in paragraph (a) of this provision exists will not necessarily result in withholding of an award under this solicitation. However, the certification will be considered in connection with a determination of the Offeror's responsibility. Failure of the Offeror to furnish a certification or provide such additional information as requested by the Contracting Officer may render the Offeror nonresponsible.

(d) Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render, in good faith, the certification required by paragraph (a) of this provision. The knowledge and information of an Offeror is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

(e) The certification in paragraph (a) of this provision is a material representation of fact upon which reliance was placed when making award. If it is later determined that the Offeror knowingly rendered an erroneous certification, in addition to other remedies available to the Government, the Contracting Officer may terminate the contract resulting from this solicitation for default.

K.6 WBR 1452.209-900 Bidder Responsibility Data--Bureau of Reclamation--Lower Colorado Region (Nov 1996)

(a) To assist the Contracting Officer in making an affirmative determination of responsibility pursuant to Federal Acquisition Regulation, Part 9, each bidder shall provide a list of all Government and commercial contracts performed during the past year. If additional space is required, the list may be continued on a plain piece of paper which shall be properly identified and attached to the bid submittal documents.

| CUSTOMER | CONTACT POINT & PHONE NUMBER | CONTRACT NUMBER | CONTRACT AMOUNT | EST/ACTUAL COMPLETION DATE |
|---|---|---|---|---|
| | | | | |

| CUSTOMER | CONTACT POINT & PHONE NUMBER | CONTRACT NUMBER | CONTRACT AMOUNT | EST/ACTUAL COMPLETION DATE |
|---|---|---|---|---|
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K.7 52.219-1 Small Business Program Representations (May 1999)

(a) (1) The standard industrial classification (SIC) code for this acquisition is 3491.

(2) The small business size standard is 500 average employees employed by an offeror in the preceding 12 months.

(3) The small business size standard for a concern which submits an offer in its own name, other than on a construction or service contract, but which proposes to furnish a product which it did not itself manufacture, is 500 employees.

(b) Representations. (1) The offeror represents as part of its offer that it ( ) is, ( ) is not a small business concern.

(2) *(Complete only if the offeror represented itself as a small business concern in paragraph (b)(1) of this provision.)* The offeror represents, for general statistical purposes, that it ( ) is, ( ) is not a small disadvantaged business concern as defined in 13 CFR 124.1002.

(3) *(Complete only if the offeror represented itself as a small business concern in paragraph (b)(1) of this provision.)* The offeror represents as part of its offer that it ( ) is, ( ) is not a women-owned small business concern.

(c) Definitions.

“Small business concern,” as used in this provision, means a concern, including its affiliates, that is independently owned and operated, not dominant in the field of operation in which it is bidding on Government contracts, and qualified as a small business under the criteria in 13 CFR Part 121 and the size standard in paragraph (a) of this provision.

“Women-owned small business concern,” as used in this provision, means a small business concern–

(1) Which is at least 51 percent owned by one or more women or, in the case of any publicly owned business, at least 51 percent of the stock of which is owned by one or more women; and

(2) Whose management and daily business operations are controlled by one or more women.

(d) Notice. (1) If this solicitation is for supplies and has been set aside, in whole or in part, for small business concerns, then the clause in this solicitation providing notice of the set-aside contains restrictions on the source of the end items to be furnished.

(2) Under 15 U.S.C. 645(d), any person who misrepresents a firm's status as a small, small disadvantaged, or woman-owned small business concern in order to obtain a contract to be awarded under the preference programs established pursuant to sections 8(a), 8(d), 9, or 15 of the Small Business Act or any other provision of Federal law that specifically references section 8(d) for a definition of program eligibility, shall--

(i) Be punished by imposition of fine, imprisonment, or both;

(ii) Be subject to administrative remedies, including suspension and debarment; and

(iii) Be ineligible for participation in programs conducted under the authority of the Act.

K.8 52.222-22 Previous Contracts and Compliance Reports (Feb 1999)

The offeror represents that--

(a) It [ ] has, [ ] has not participated in a previous contract or subcontract subject to the Equal Opportunity clause of this solicitation;

(b) It [ ] has, [ ] has not, filed all required compliance reports; and

(c) Representations indicating submission of required compliance reports, signed by proposed subcontractors, will be obtained before subcontract awards.

K.9 52.223-13 Certification of Toxic Chemical Release Reporting (Oct 1996)

(a) Submission of this certification is a prerequisite for making or entering into this contract imposed by Executive Order 12969, August 8, 1995.

(b) By signing this offer, the offeror certifies that--

(1) As the owner or operator of facilities that will be used in the performance of this contract that are subject to the filing and reporting requirements described in section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) (42 U.S.C. 11023) and section 6607 of the Pollution Prevention Act of 1990 (PPA) (42 U.S.C. 13106), the offeror will file and continue to file for such facilities for the life of the contract the Toxic Chemical Release Inventory Form (Form R) as described in sections 313(a) and (g) of EPCRA and section 6607 of PPA; or

(2) None of its owned or operated facilities to be used in the performance of this contract is subject to the Form R filing and reporting requirements because each such facility is exempt for at least one of the following reasons: (Check each block that is applicable.)

[ ] (i) The facility does not manufacture, process, or otherwise use any toxic chemicals listed under section 313(c) of EPCRA, 42 U.S.C. 11023(c);

[ ] (ii) The facility does not have 10 or more full-time employees as specified in section 313(b)(1)(A) of EPCRA, 42 U.S.C. 11023(b)(1)(A);

[ ] (iii) The facility does not meet the reporting thresholds of toxic chemicals established under section 313(f) of EPCRA, 42 U.S.C. 11023(f) (including the alternate thresholds at 40 CFR 372.27, provided an appropriate certification form has been filed with EPA);

[ ] (iv) The facility does not fall within Standard Industrial Classification Code (SIC) designations 20 through 39 as set forth in Section 19.102 of the Federal Acquisition Regulation; or

[ ] (v) The facility is not located within any State of the United States, the District of Columbia, the Commonwealth of Puerto Rico, Guam, American Samoa, the United States Virgin

Islands, the Northern Mariana Islands, or any other territory or possession over which the United States has jurisdiction.

K.10 WBR 1452.225-903 Offers Based on Foreign Construction Materials--Bureau of Reclamation--Lower Colorado Region (Nov 1996)

(a) Any offer based on the use of one or more foreign construction materials shall include data, in the format listed in paragraph (b) below, clearly demonstrating that the cost of each foreign construction material, plus 6 percent, is less than the cost of each comparable domestic construction material. The cost of construction material shall be computed by including all delivery costs of the construction material, and any applicable duty whether or not a duty-free entry certificate may be issued.

(b) For evaluation purposes under paragraph (a) above, the following information shall be included in the offer for the use of one or more foreign construction materials:

FOREIGN AND DOMESTIC CONSTRUCTION MATERIALS COST COMPARISON

| Construction Material Description | Unit | Quantity | Cost including all delivery costs to construction site [1] (dollars) |
|---|---|---|---|
| Item 1. (a) Foreign Construction Material:<br>(b) Comparable domestic construction material: | | | $ _____<br>$ _____ |
| Item 2. (a) Foreign construction material:<br>(b) Comparable domestic construction material: [2] | | | $ _____<br>$ _____ |

[1] Include applicable duty for foreign material.
[2] If additional materials are offered, continue on a separate page containing the same format.

# SECTION L - INSTRUCTIONS, CONDITIONS, AND NOTICES TO OFFERORS
(This section will be removed from the contract document)

L.1 52.252-1 Solicitation Provisions Incorporated by Reference (Feb 1998)

This solicitation incorporates one or more solicitation provisions by reference, with the same force and effect as if they were given in full text. Upon request, the contracting officer will make their full text available. The offeror is cautioned that the listed provisions may include blocks that must be completed by the offeror and submitted with its quotation or offer. In lieu of submitting the full text of those provisions, the offeror may identify the provision by paragraph identifier and provide the appropriate information with its quotation or offer. Also, the full text of a solicitation provision may be accessed electronically via the Internet at this address: http://www.arnet.gov/far.

| | |
|---|---|
| 52.204-6 | Data Universal Numbering System (DUNS) Number (Jun 1999) |
| 52.214-34 | Submission of Offers in the English Language (Apr 1991) |
| 52.214-35 | Submission of Offers in U.S. Currency (Apr 1991) |
| 52.215-1 | Instructions to Offerors--Competitive Acquisition (Feb 2000) |
| 52.222-23 | Notice of Requirement for Affirmative Action to Ensure Equal Employment Opportunity for Construction (Feb 1999) |
| 52.236-28 | Preparation of Proposals-Construction (Oct 1997) |
| WBR 1452.211-80 | Notice of Intent to Acquire Metric Products and Services–Bureau of Reclamation (Mar 1993) |

L.2 52.211-1 Availability of Specifications Listed in the GSA Index of Federal Specifications, Standards and Commercial Item Descriptions, FPMR Part 101-29 (Aug 1998)

(a) The GSA Index of Federal Specifications, Standards and Commercial Item Descriptions, FPMR Part 101-29, and copies of specifications, standards, and commercial Item Descriptions cited in this solicitation may be obtained for a fee by submitting a request to--

GSA Federal Supply Service
Specifications Section, Suite 8100
470 East L'Enfant Plaza, SW
Washington, DC 20407
Tel. 202-619-8925
Facsimile 202-619-8978
Internet: http://pub.fss.gsa.gov/pub/fed-specs.html

(b) If the General Services Administration, Department of Agriculture, or Department of Veterans Affairs issued this solicitation, a single copy of specifications, standards, and

commercial item descriptions cited in this solicitation may be obtained free of charge by submitting a request to the addressee in paragraph (a) of this provision. Additional copies will be issued for a fee.

L.3 52.211-3 Availability of Specifications Not Listed in the GSA Index of Federal Specifications, Standards and Commercial Item Descriptions (Jun 1988)

(a) Information on standards which are identified in the specifications by dual acronyms, for example, ANSI/ASTM, indicating the American National Standards Institute and sponsorship by the American Society for Testing Materials or other sponsoring organization, may be obtained from the appropriate sponsoring organization.

(b) For various manuals and standard specifications printed, reprinted, or published while the Bureau of Reclamation was officially named Water and Power Resources Service. All references to Water and Power Resources Service or any form derivative thereof herein shall be considered synonymous with the Bureau of Reclamation. The address in (c) below may also be used to order the various manuals and standard specifications printed, reprinted, or published while the Bureau of Reclamation was officially named the Water and Power Resources Service.

(c) The specifications cited in this solicitation may be obtained from one or more of the addresses listed below.

| ACRONYM | TITLE | ADDRESS | PHONE NOS. |
|---|---|---|---|
| ANSI | American National Standards Institute | 11 West 42nd Street<br>New York NY 10036<br>www.ansi.org | (212) 642-4900<br>Fax: (212) 398-0023 |
| ASTM | American Society for Testing and Materials | 100 Barr Harbor Drive<br>West Conshohocken PA 19428-2959<br>www.astm.org | (610) 832-9585<br>Fax: (610) 832-9555 |
| NACE | National Association of Corrosion Engineers | 1440 South Creek Drive<br>Houston TX 77084 | (281) 228-6200<br>Fax: (281) 228-6329 |
| SSPC | The Society for Protective Coatings | 40 24th Street, 6th Floor<br>Pittsburgh PA 15222-4656<br>www.sspc.org | (412) 281-2331<br>Fax: (412) 281-9992 |
| | Bureau of Reclamation [1] | P.O. Box 25007, Attn: D-8170<br>Denver CO 80225 | 303-445-3082 |

[1] Reclamation Standard Specifications

(d) Copies of many of the Federal Specifications and Standards may be examined at the office of the Bureau of Reclamation, Denver Office, Building 67, Denver Federal Center, West 6th Avenue and Kipling Street, Denver, Colorado.

OTHER RECLAMATION PUBLICATIONS - Reclamation manuals and significant scientific, technical, and engineering works are available from the National Technical Information Service (NTIS). United States Department of Commerce, National Technical Information Service 5285 Port Royal Road, Springfield VA 22161. Telephone: (703) 487-4650 or 1-800-553-6847

Department of the Army, U.S. Army Corps of Engineers Publications Depot, 2803 52nd Avenue, Hyattsville MD 20781-1102. Tel: 301/436-2063

Department of Commerce, Standards Management Program, Office of Standards Services, National Institute for Standards and Technology, Gaithersburg MD 20899. Tel: 301/975-4025

Defense Printing Service Detachment Office, Building 4, Section D, 700 Robins Avenue, Philadelphia PA 19111-5094. Tel: 215/697-2179

Department of Transportation, Superintendent of Documents, U.S. Government Printing Office, Washington D.C. 20402-9371. Tel: 202/783-3238

NBS - National Bureau of Standards, National Technical Information Service, 5285 Port Royal Road, Springfield VA 22161. Tel: 703/487-4650

L.4 1452.215-71 Use And Disclosure of Proposal Information--Department of the Interior (Apr 1984)

(a) Definitions. For the purposes of this provision and the Freedom of Information Act (5 U.S.C. 552), the following terms shall have the meaning set forth below:

(1) "Trade Secret" means an unpatented, secret, commercially valuable plan, appliance, formula, or process, which is used for making, preparing, compounding, treating or processing articles or materials which are trade commodities.

(2) "Confidential commercial or financial information" means any business information (other than trade secrets) which is exempt from the mandatory disclosure requirement of the Freedom of Information Act, 5 U.S.C. 552. Exemptions from mandatory disclosure which may be applicable to business information contained in proposals include exemption (4), which covers "commercial and financial information obtained from a person and privileged or confidential," and exemption (9), which covers "geological and geophysical information, including maps, concerning wells."

(b) If the offeror, or its subcontractor(s), believes that the proposal contains trade secrets or confidential commercial or financial information exempt from disclosure under the Freedom of

Information Act, (5 U.S.C. 552), the cover page of each copy of the proposal shall be marked with the following legend:

"The information specifically identified on pages _____ of this proposal constitutes trade secrets or confidential commercial and financial information which the offeror believes to be exempt from disclosure under the Freedom of Information Act. The offeror requests that this information not be disclosed to the public, except as may be required by law. The offeror also requests that this information not be used in whole or part by the Government for any purpose other than to evaluate the proposal, except that if a contract is awarded to the offeror as a result of or in connection with the submission of the proposal, the Government shall have the right to use the information to the extent provided in the contract."

(c) The offeror shall also specifically identify trade secret information and confidential commercial and financial information on the pages of the proposal on which it appears and shall mark each such page with the following legend:

"This page contains trade secrets or confidential commercial and financial information which the offeror believes to be exempt from disclosure under the Freedom of Information Act and which is subject to the legend contained on the cover page of this proposal."

(d) Information in a proposal identified by an offeror as trade secret information or confidential commercial and financial information shall be used by the Government only for the purpose of evaluating the proposal, except that (i) if a contract is awarded to the offeror as a result of or in connection with submission of the proposal, the Government shall have the right to use the information as provided in the contract, and (ii) if the same information is obtained from another source without restriction it may be used without restriction.

(e) If a request under the Freedom of Information Act seeks access to information in a proposal identified as trade secret information or confidential commercial and financial information, full consideration will be given to the offeror's view that the information constitutes trade secrets or confidential commercial or financial information. The offeror will also be promptly notified of the request and given an opportunity to provide additional evidence and argument in support of its position, unless administratively unfeasible to do so. If it is determined that information claimed by the offeror to be trade secret information or confidential commercial or financial information is not exempt from disclosure under the Freedom of Information Act, the offeror will be notified of this determination prior to disclosure of the information.

(f) The Government assumes no liability for the disclosure or use of information contained in a proposal if not marked in accordance with paragraphs (b) and (c) of this provision. If a request under the Freedom of Information Act is made for information in a proposal not marked in accordance with paragraphs (b) and (c) of this provision, the offeror concerned shall be promptly

notified of the request and given an opportunity to provide its position to the Government. However, failure of an offeror to mark information contained in a proposal as trade secret information or confidential commercial or financial information will be treated by the Government as evidence that the information is not exempt from disclosure under the Freedom of Information Act, absent a showing that the failure to mark was due to unusual or extenuating circumstances, such as a showing that the offeror had intended to mark, but that markings were omitted from the offeror's proposal due to clerical error.

L.5 WBR 1452.215-80 Source Evaluation and Selection Procedures--Bureau of Reclamation (Jan 1998)

The Government will evaluate proposals submitted under this solicitation, conduct negotiations (unless award is made without discussions on the basis of initial proposals in accordance with the Instructions to Offerors–Competitive Acquisition provision of this solicitation), and select a source for contract award in accordance with procedures contained in FAR Part 15, Department of the Interior Acquisition Regulation (DIAR) Part 1415 (48 CFR 1415) and Bureau of Reclamation Acquisition Regulation WBR Part 1415. These procedures are summarized as follows:

(a) Technical evaluation. A Technical Proposal Evaluation Committee has been established to objectively evaluate technical proposals in accordance with the Evaluation Factors for Award--Bureau of Reclamation provision in Part IV, Section M of this solicitation. Technical proposals shall be submitted in accordance with the Technical Proposal Instructions --Bureau of Reclamation provision in Part IV, Section L of this solicitation.

(b) Cost or price evaluation. An objective cost or price evaluation of contract pricing proposals will be made in accordance with the Evaluation Factors for Award provision in Part IV, Section M of this solicitation. Pricing proposals shall be submitted in accordance with the Pricing Proposal Instructions--Bureau of Reclamation provision in Part IV, Section L of this solicitation. Pursuant to FAR 15.404-1, cost or price evaluation will be used to determine cost/price reasonableness and the offeror's understanding of, and ability to perform, the prospective contract.

(c) Clarifications. Clarifications are limited exchanges, between the Government and offerors, that may occur when award without discussions is contemplated. If award will be made without conducting discussions, offerors may be given the opportunity to clarify certain aspects of proposals (e.g., the relevance of an offeror’s past performance information and adverse past performance information to which the offeror has not previously had an opportunity to respond) or to resolve minor or clerical errors.

(d) Communications. Communications are exchanges, between the Government and offerors, after receipt of proposals, leading to establishment of the competitive range. Communications may be conducted to enhance Government understanding of proposals, allow reasonable interpretation of the proposal, or facilitate the Government's evaluation process. Such communications may not be used to cure proposal deficiencies or material omissions, materially alter the technical or cost elements of the proposal, and/or otherwise revise the proposal. Communications are for the purpose of addressing issues that must be explored to determine whether a proposal should be placed in the competitive range. They shall not provide an opportunity for the offeror to revise its proposal, but may address ambiguities in the proposal or other concerns and information relating to past performance.

(e) Competitive range. If discussions are to be conducted, the contracting officer shall establish the competitive range based on the ratings of each proposal against all evaluation criteria. The competitive range shall comprise all the most highly rated proposals, unless the range is further reduced for purposes of efficiency. The contracting officer may determine that the number of most highly rated proposals that might otherwise be included in the competitive range exceeds the number at which an efficient competition can be conducted. The contracting officer may then limit the number of proposals in the range to the greatest number that will permit an efficient competition among the most highly rated proposals. If, after discussions have begun (see paragraph (g) below), an offeror originally in the competitive range is no longer considered to be among the most highly rated offerors being considered for award, that offeror may be eliminated from the range whether or not all material aspects of the proposal have been discussed, or whether or not the offeror has been afforded an opportunity to submit a proposal revision.

(f) Preaward debriefing of offerors. Offerors excluded from the competitive range or otherwise excluded from further consideration prior to the final source selection decision may request a debriefing before award. The process for requesting and conducting preaward debriefings may be found at FAR 15.505.

(g) Discussions. Discussions are exchanges between the Government and offerors, after establishment of the competitive range, that are undertaken with the intent of allowing the offeror to revise its proposal. These discussions may include bargaining, including persuasion, alteration of assumptions and positions, give-and-take, and may apply to price, schedule, technical requirements, type of contract, or other terms of a proposed contract. Discussions are tailored to each offeror's proposal, and shall be conducted by the contracting officer with each offeror within the competitive range. The primary objective of discussions is to maximize the Government's ability to obtain best value, based on the requirement and the evaluation factors set forth in the solicitation.

(h) Proposal revisions. The contracting officer may request or allow proposal revisions to clarify and document understandings reached during negotiations. At the conclusion of discussions, each offeror in the competitive range shall be given an opportunity to submit a final proposal revision. The contracting officer is required to establish a common cut-off date only for receipt of final proposal revisions. Requests for final proposal revisions shall advise offerors that the final proposal revisions shall be in writing and that the Government intends to make award without obtaining further revisions.

(i) Preaward survey. A Government survey activity may contact an offeror, or visit its facility, to obtain information for determining its financial resources and/or its technical capabilities to perform the work when available information is not sufficient for the Contracting Officer to make a determination regarding contractor responsibility as required by FAR Subpart 9.1. Current financial statements and other information required to make this determination shall be made available to the survey activity. Information provided shall be protected from release or disclosure outside the Government, except as provided in FAR Subpart 24.2, Freedom of Information Act.

(j) Organizational conflicts of interest. Award will not be made to an apparent successful offeror when an organizational conflict of interest is determined to exist and cannot be avoided or mitigated, unless the Contracting Officer determines that award is in the best interest of the United States and a waiver is obtained pursuant to DIAR 1409.503 (48 CFR 1409.503).

(k) Source selection decision. The source selection authority's (SSA) decision shall be based on a comparative assessment of proposals against all source selection criteria in the solicitation. While the SSA may use reports and criteria prepared by others, the source selection decision shall represent the SSA's independent judgment. The source selection decision shall be documented, and the documentation shall include the rationale for any business judgments and tradeoffs made or relied on by the SSA, including benefits associated with additional costs. Although the rationale for the selection decision must be documented, that documentation need not quantify the tradeoffs that led to the decision.

(l) Postaward notice. After contract award, unsuccessful offerors will be provided with written notice regarding contract award (including the information listed in FAR 15.503(b)) by the Contracting Officer. Offerors receiving prior notice of exclusion from the competitive range under paragraph (f) of this provision will not receive this notice.

(m) Postaward debriefing of offerors. An offeror shall be debriefed and furnished the basis for the source selection decision and contract award if its written request is received by the contracting officer within three days after the offeror receives notice of contract award. The process for requesting and conducting postaward debriefings may be found at FAR 15.506.

L.6 WBR 1452.215-81 General Proposal Instructions--Bureau of Reclamation (Jan 1998)

In addition to the requirements of the Instructions to Offerors--Competitive Acquisition provision of this solicitation, each offeror shall submit a proposal in accordance with the instructions contained in this provision.

(a) General contents. Each proposal shall:

(1) Be specific and complete in every detail;

(2) Conform to all solicitation provisions, clauses, or other requirements;

(3) Be logically assembled, practical, legible, clear, concise, coherent; and indexed (cross-indexed, where appropriate); and

(4) Contain appropriately numbered pages of each volume or part.

(b) Arrangement of Proposal. The proposal shall consist of three (3) physically separated volumes, individually entitled as stated below. The required number of copies for each volume are shown below:

| Volume | Title | Copies Required |
|---|---|---|
| I | Executed Section A of the solicitation and Representations, Certifications, and Other Statements of Offerors | 1 |
| II | Technical Proposal | 3 |
| III | Pricing Proposal | 1 |

(c) Separation of volumes. All copies of each proposal volume (i.e., all copies of Volume I) are to be packaged individually and clearly marked to identify contents. The exterior of each package containing proposals shall be marked with the solicitation number, and the time and date for receipt of proposals and the name and address of the offeror, in order to prevent mishandling.

(d) Representations, certifications, and other offeror statements (Volume I). Volume I shall incorporate the other Volumes by reference, but shall not physically include them. It shall consist of:

(1) A fully executed Solicitation, Offer, and Award form required by Part I, Section A of this solicitation. It shall be used as the cover sheet (or first page) of each copy of Volume I;

(2) Fully executed and completed offeror representations, certifications, and acknowledgments required by Part IV, Section K of this solicitation;

(3) Additional information required by the solicitation to be furnished by the offeror which is not required to be obtained in another volume of the proposal;

(4) Make or Buy Program (if applicable); any waivers of any solicitation provisions or contract clauses; and

(6) A summary of any exemptions from, or deviations to, any other solicitation requirements.

(e) Technical Proposal (Volume II). See the requirements contained in the Technical Proposal Instructions--Bureau of Reclamation provision of the solicitation.

(f) Pricing Proposal (Volume III). See the requirements contained in the Pricing Proposal Instructions--Bureau of Reclamation provision of the solicitation. Offerors are hereby notified that even if cost or pricing data are not initially requested in this solicitation, the Contracting Officer reserves the right to request such data if they are later found necessary pursuant to FAR 15.403-5(a)(1).

L.7 WBR 1452.215-82 Technical Proposal Instructions--Bureau of Reclamation (Jan 1998)

(a) General. The technical proposal shall be identified as Volume II of the offeror's proposal and shall be an orderly, specific, and complete document in every detail. It should be presented in a manner which allows it to "stand alone" without the need to reference other documents. It should convincingly describe the capability of the offeror's organization to participate in this project and effectively demonstrate a thorough understanding of the work statement contained in Part I, Section C of this solicitation. The proposal shall be organized and written so that it can be easily read and meaningfully evaluated by Reclamation personnel from a variety of different functional and technical disciplines. It should be a coherent document free of internal inconsistencies as well as inconsistencies with other volumes of the proposal.

(b) Use and Disclosure of Proposal Information. In accordance with the Use and Disclosure of Proposal Information -- Department of the Interior provision of this solicitation, offerors shall mark trade secret or confidential commercial or financial information contained in the proposal with the restrictive legends specified. The offeror shall also clearly and separately mark all proprietary information (as defined in FAR 3.104-3) contained in the proposal with the restrictive legend "Proprietary Information."

(c) Format and Content. To assist in the uniform evaluation of proposals, the following format shall be utilized in preparing the technical proposal:

(1) Table of contents. The Table of Contents shall list all sections of the technical proposal. Any future amendments, additions and/or revisions to the proposal shall be included in an updated Table of Contents;

(2) Enclosures. The enclosures shall include a list of any tables, drawings, charts, and any other enclosures which summarize data or information;

(3) Offeror Experience and Past Performance. Provide a list of projects similar in scope and magnitude to the work required under this solicitation which the offeror has completed during the last 5 years. For each project, include:

(i) Name of the project;

(ii) Description of the work;

(iii) Contract number, date and type;

(iv) Name and address of the acquiring Government agency or commercial customer;

(v) Initial contract amount and final contract amount;

(vi) Any problems encountered in performance of the work and corrective action(s) taken; and

(vii) Name(s) and telephone number(s) of references from the acquiring agency or customer who may be contacted for further information.

(4) Other information. Submit any other information which the offeror may deem necessary to address the evaluation factors contained in Section M of the solicitation.

(d) Cost/Price Information. To permit objective evaluation of the technical proposal, no cost or price information shall be included in the technical proposal.

L.8 WBR 1452.215-83 Pricing Proposal Instructions--Bureau of Reclamation (Jan 1998)

(a) General. The pricing proposal shall be identified as Volume III of the offeror's proposal and shall be an orderly, specific, and complete document in every detail. It should be a coherent

document free of internal inconsistencies and should be consistent with the technical approach(es) proposed in the technical proposal (Volume II). Offerors are hereby notified that even though cost or pricing data are not initially requested in this solicitation, the Contracting Officer reserves the right to request such data if they are later found necessary pursuant to FAR 15.403-5(a)(1).

(b) Use and Disclosure of Proposal Information. In accordance with the Use and Disclosure of Proposal Information--Department of the Interior provision of this solicitation, offerors shall mark trade secret or confidential commercial or financial information contained in the proposal with the restrictive legends specified. The offeror shall also clearly and separately mark all proprietary information (as defined in FAR 3.104-3 contained in the proposal with the restrictive legend "Proprietary Information."

(c) Format and Content. To assist in the uniform evaluation of proposals, the following format shall be utilized in preparing the pricing proposal:

(1) Table of contents. The Table of Contents shall list all sections of the pricing proposal. Any modifications or revisions to the proposal, up to the date of agreement on price, shall include an updated Table of Contents;

(2) Index. The index shall cross reference the work statement to the terms of the proposal and indicate how the proposal conforms to the evaluation factors contained in Part IV, Section M of this solicitation;

(3) Enclosures. A list shall be included of all enclosures, attachments, tables, drawings, charts, and any other material which summarize data or information contained or referenced in the pricing proposal.

(4) Pricing proposal breakdown. The offeror shall submit Section B of the contract Schedule (Part I of this solicitation) with its proposed total prices/costs for each contract line item (including any options) and proposed unit price(s), if required. In addition, a total proposed price consisting of the sum of all contract line items (excluding options) shall be submitted. Offerors are hereby notified that even though additional data to support proposed prices are not initially requested in this solicitation, the Contracting Officer reserves the right to request such data if they are later found necessary.

(d) Cost Information in Other Volumes. No cost information shall be included in any other volume of a proposal unless required by paragraph (d) of the Technical Proposal Instructions -- Bureau of Reclamation provision of this solicitation.

(e) Page Numbering. All pages in the cost proposal should be consecutively numbered (including pages with tables and exhibits). The offeror shall clearly identify all exhibits and supporting information.

(f) Rounding of Costs. All price or cost amounts proposed shall be expressed to the nearest whole dollar except for individual hourly labor rates (if required). All percentages shall be expressed to one decimal place.

L.9 1452.215-914 Period for Acceptance of Offer--Bureau of Reclamation--Lower Colorado Region (Mar 2000)

Initial proposals in response to this solicitation will be valid for 60 calendar days, if award is made without discussion. If negotiations are conducted, the 60 calendar day offer acceptance period (unless a different period is inserted by the offeror) shall apply to the final proposal revision and shall commence on the due date for receipt of final proposal revisions.

L.10 52.216-1 Type of Contract (Apr 1984)

The Government contemplates award of a firm fixed-price contract resulting from this solicitation.

L.11 52.225-10 Notice of Buy American Act/Balance of Payments Program Requirement--Construction Materials (Feb 2000)

(a) Definitions. Construction material, domestic construction material, and foreign construction material, as used in this provision, are defined in the clause of this solicitation entitled “Buy American Act--Balance of Payments Program--Construction Materials” (Federal Acquisition Regulation (FAR) clause 52.225-9).

(b) Requests for determinations of inapplicability. An offeror requesting a determination regarding the inapplicability of the Buy American Act or Balance of Payments Program should submit the request to the Contracting Officer in time to allow a determination before submission of offers. The offeror shall include the information and applicable supporting data required by paragraphs (c) and (d) of the clause at FAR 52.225-9 in the request. If an offeror has not requested a determination regarding the inapplicability of the Buy American Act or Balance of Payments Program before submitting its offer, or has not received a response to a previous request, the offeror shall include the information and supporting data in the offer.

(c) Evaluation of offers. (1) The Government will evaluate an offer requesting exception to the requirements of the Buy American Act or Balance of Payments Program, based on claimed unreasonable cost of domestic construction material, by adding to the offered price the

appropriate percentage of the cost of such foreign construction material, as specified in paragraph (b)(3)(i) of the clause at FAR 52.225-9.

(2) If evaluation results in a tie between an offeror that requested the substitution of foreign construction material based on unreasonable cost and an offeror that did not request an exception, the Contracting Officer will award to the offeror that did not request an exception based on unreasonable cost.

(d) Alternate offers. (1) When an offer includes foreign construction material not listed by the Government in this solicitation in paragraph (b)(2) of the clause at FAR 52.225-9, the offeror also may submit an alternate offer based on use of equivalent domestic construction material.

(2) If an alternate offer is submitted, the offeror shall submit a separate Standard Form 1442 for the alternate offer, and a separate price comparison table prepared in accordance with paragraphs (c) and (d) of the clause at FAR 52.225-9 for the offer that is based on the use of any foreign construction material for which the Government has not yet determined an exception applies.

(3) If the Government determines that a particular exception requested in accordance with paragraph (c) of the clause at FAR 52.225-9 does not apply, the Government will evaluate only those offers based on use of the equivalent domestic construction material, and the offeror shall be required to furnish such domestic construction material. An offer based on use of the foreign construction material for which an exception was requested--

(i) Will be rejected as nonresponsive if this acquisition is conducted by sealed bidding; or

(ii) May be accepted if revised during negotiations.

L.12 WBR 1452.225-82 Notice of Trade Agreements Act Evaluations--Bureau of Reclamation (Oct 1998)

In accordance with the Agreement on Government Procurement, as amended by the Uruguay Round Agreements Act (Pub. L. 103-465), and other trade agreements, the Trade Agreements Act applies to Bureau of Reclamation acquisitions. Reclamation will evaluate acquisitions at or above the dollar thresholds listed below without regard to the restrictions of the Buy American Act:

(a) Construction ($7,143,000 or $6,909,500 if NAFTA country construction materials are being offered);

(b) Supplies or services:

(1) Mexico ($53,150);
(2) Canada ($186,000);
(3) Israel ($186,000); and
(4) All other designated countries ($186,000).

L.13 52.233-2 Service of Protest (Aug 1996) Department of the Interior (Jul 1996) (Deviation)

(a) Protests as defined in section 33.101 of the Federal Acquisition Regulation, that are filed directly with an agency, and copies of any protests that are filed with the General Accounting Office (GAO), shall be served on the Contracting Officer (addressed as follows) by obtaining written and dated acknowledgment of receipt from: Contracting Officer, Bureau of Reclamation, P.O. Box 61470, Boulder City NV 89006-1470.

(b) The copy of any protest shall be received in the office designated above within one day of filing a protest with the GAO.

(c) A copy of the protest served on the Contracting Officer shall be simultaneously furnished by the protester to the Department of Interior Assistant Solicitor for Procurement and Patents, 1849 C Street, NW, Room 6511, Washington, D.C. 20240.

L.14 WBR 1452.233-80 Agency Procurement Protests--Bureau of Reclamation (Sep 1997)

(a) Executive Order 12979, Agency Procurement Protests, establishes policy on agency procurement protests. This policy is implemented at section 33.103 of the Federal Acquisition Regulation. For solicitations issued by the Bureau of Reclamation, an interested party may request independent review of its protest by the Bureau Procurement Chief.

(b) This independent review is available as an alternative to consideration by the contracting officer or as an appeal of the contracting officer's decision on a protest. An interested party may:

(1) Protest to the contracting officer;

(2) Protest directly to the Bureau Procurement Chief, without first protesting to the contracting officer; or

(3) Appeal a contracting officer's decision to the Bureau Procurement Chief.

(c) An appeal of the contracting officer's decision must be received by the Bureau Procurement Chief (Bureau of Reclamation, Denver Federal Center, Bldg. 67, P.O. Box 25007 (D-7800),

Denver, CO 80225-25007) no later than 3 days after receipt of that decision by the interested party. The Bureau Procurement Chief shall render a decision no later than 5 days after receipt of an appeal.

(d) If there is an appellate review of the contracting officer's decision by the Bureau Procurement Chief, it will not extend the General Accounting Officer's timeliness requirements. Therefore, any subsequent protest to the GAO must be filed within 10 days of knowledge of initial adverse agency action (4 CFR 21.2(a)(3)).

L.15 WBR 1452.233-82 Notice of Proposed Partnering--Bureau of Reclamation (May 1994)

Reclamation policy is to try to resolve all contractual issues in controversy by mutual agreement through the use of an appropriate alternative disputes resolution process. Thus to most effectively complete the work required under the future contract, the Bureau of Reclamation proposes to mutually form a voluntary Partnering arrangement with the Contractor. This bilateral relationship would strive for mutual trust, dedication to common goals, and an understanding of each other's individual expectations and values. The expected benefits would include improved efficiency, cost effectiveness and innovation between all parties to ensure a quality deliverable that is completed on time and within budget. Any cost associated with implementing this Partnering arrangement will be agreed to by both parties and will be shared equally, with no change in contract price. Additional information on Partnering and suggested implementation procedures are contained in the Bureau of Reclamation "Partnering" guide book, that is available from the contracting officer.

L.16 52.236-27 Site Visit (Construction) (Feb 1995)

(a) The clauses at 52.236-2, Differing Site Conditions, and 52.236-3, Site Investigations and Conditions Affecting the Work, will be included in any contract awarded as a result of this solicitation. Accordingly, offerors or quoters are urged and expected to inspect the site where the work will be performed.

(b) Site visits may be arranged during normal duty hours by contacting:

| | |
|---|---|
| Name: | Mr. Chuck Wiley |
| Address: | P.O. Box 60400 (Attn: LCD-2100)<br>Boulder City NV 89006-0400 |
| Telephone: | (702) 293-8314 |
| Fax: | (702) 293-8319 |

L.17 52.252-5 Authorized Deviations in Provisions (Apr 1984)

(a) The use in this solicitation of any Federal Acquisition Regulation (48 CFR Chapter 1) provision with an authorized deviation is indicated by the addition of "(DEVIATION)" after the date of the provision.

(b) The use in this solicitation of any Department of Interior Acquisition Regulation (48 CFR Chapter 14) provision with an authorized deviation is indicated by the addition of "(DEVIATION)" after the name of the regulation.

# SECTION M - EVALUATION FACTORS FOR AWARD
(This section will be removed from the contract document)

## M.1 WBR 1452.215-86 EVALUATION FACTORS FOR AWARD -- COST OR PRICE PREDOMINANCE -- BUREAU OF RECLAMATION (JAN 1998)

(a) Award will be made to the responsible offeror submitting a proposal which conforms to the solicitation and is most advantageous to the Government considering the factors and any significant subfactors listed in this provision.

(b) In the evaluation of proposals, all evaluation factors other than cost or price (listed in this provision), when combined, are considered to be significantly less important than cost or price. The relative importance to be placed on the evaluation factors in relation to each other is contained in paragraph (e) of this provision. However, the degree of importance of non-cost or non-price factors may increase with the degree of cost or price equality between the proposals. The Contracting Officer reserves the right to make award to other than the technically-acceptable offeror with the lowest cost or price proposal if it is determined that the technical benefits of another offeror's proposal justify its higher cost/price.

(c) Pursuant to FAR 15.305, a cost or price evaluation may be performed to determine the reasonableness of costs/prices proposed and the offeror's understanding of, and ability to perform, the prospective contract.

(d) The following factors and significant subfactors will be considered in evaluating proposals and making the source selection

(1) The offeror’s experience [may include experience of proposed subcontractor(s)] over the last five years in performing projects which are similar to the work required to be performed under this solicitation.

(2) The offeror’s past performance. The offeror’s past performance over the last three years for projects which are similar to the work required to be performed under this solicitation will be evaluated. The offeror’s past performance will be evaluated by reviewing past performance information for projects performed by the offeror, including predecessor companies, key personnel, or subcontractors. Offerors with no relevant past performance history or for whom past performance information is not available will receive scores of 50 percent of the evaluation weight for past performance.

(3) Offeror’s total price.

(e) The relative importance of the factors listed in paragraph (d) of this provision is as follows:

(1) The offeror's experience in performing projects which are similar to the work required to be performed under this solicitation is 15 percent of the total evaluation weight.

(2) The offeror's past performance is 10 percent of the total evaluation weight.

(3) The offeror's proposed total price is 75 percent of the total evaluation weight.

M.2 WBR 1452.225-900 Evaluation of Construction Materials Under the Buy American Act--Bureau of Reclamation--Lower Colorado Region (Nov 1996)

(a) In order for offers to fully comply with the requirements of the clause at FAR 52.225-9, Buy American Act--Balance of Payments Program--Construction Materials, and to provide for proper evaluation of offers proposing use of foreign construction materials under paragraph (b) of the provision WBR 1452.225-903, Offers Based on Foreign Construction Materials, offerors shall comply with the requirements of this provision.

(b) A construction material cannot qualify as a domestic material unless the cost of its components mined, produced, or manufactured in the United States exceeds 50 percent of the cost of all its components.

(c) Only the construction material and its components shall be included in calculating the cost of a domestic construction material. To qualify as a component, an item must be incorporated directly into the construction material.

(d) With the exception of the circumstance identified in (e) below, any costs associated with operations necessary to incorporate a domestic component into an existing foreign construction material shall not be considered in calculating domestic component costs. Direct labor, overhead, packaging, testing, evaluation, or other related costs incurred in completing the end-product shall not be included as part of the total cost of the construction material's components. The total cost of the construction material (i.e., price minus profit) is irrelevant since total cost may include costs other than component costs.

(e) If a manufacturer which produces a component also incorporates it into the existing foreign construction material, the manufacturing costs incurred in producing the component (e.g., direct labor, overhead, packaging, testing, and evaluation) shall be included as part of the total cost of the construction material's components.

(f) In calculating the cost of a foreign or domestic component in a construction material, such cost shall include any (1) freight cost to ship the component from its manufacturing source to the

point of inclusion in the construction material, (2) tariff costs, and (3) customs duty on foreign components (duty must be added whether or not a duty-free certificate is issued).

(g) If requested by the Contracting Officer, offerors shall furnish additional information to support the basis for calculating the cost of any foreign material and comparable domestic construction material furnished (see paragraph (d) of the clause entitled 1452.225-70 Use of Foreign Construction Materials--Department of the Interior).